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Fabrication and Installation of the Vapor Recovery System

By Bernard Cater
Superior Tank and Construction Co.

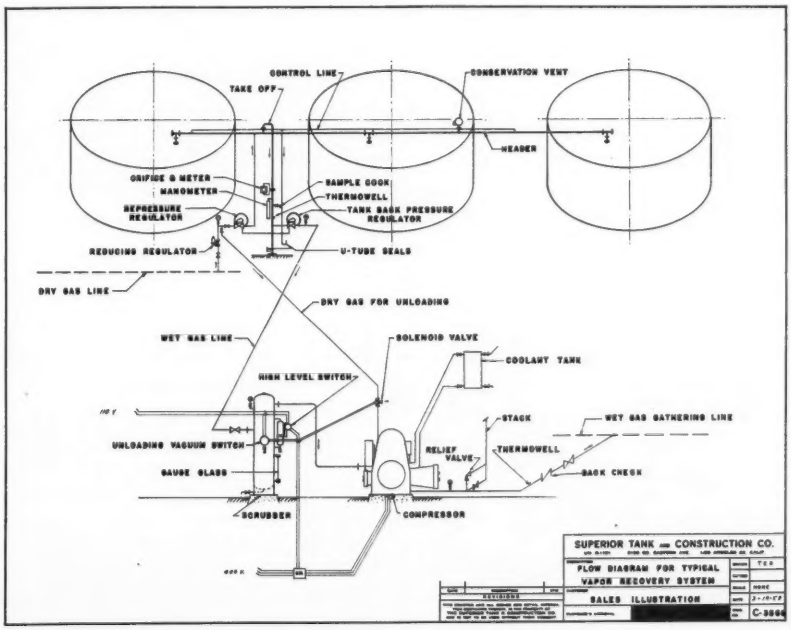
The nature of a commodity has again designed the method of its control.

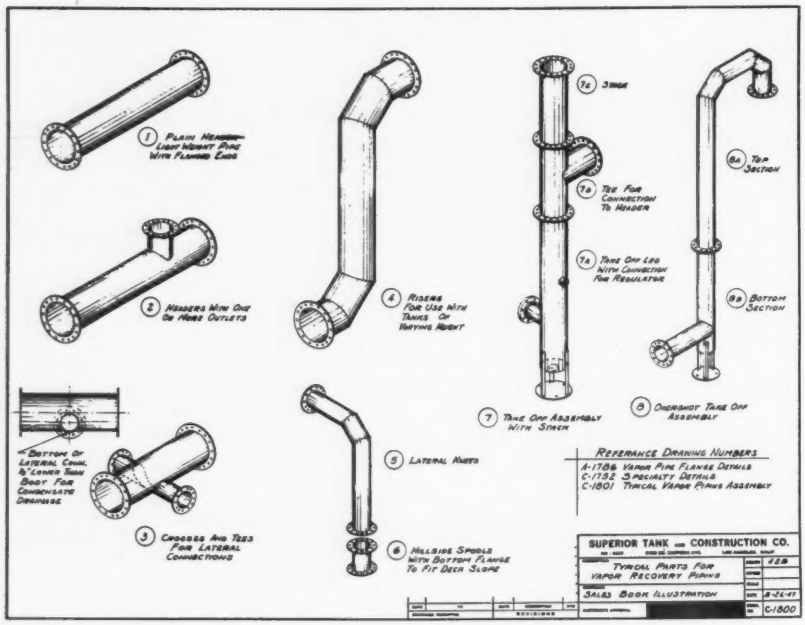
The low pressures of vapors recovered from atmospheric storage vessels for petroleum products do not lend themselves to the economical use of standard pipe and fittings. Such a statement may sound harsh until pressure losses for any system are computed. These figures indicate pipe diameters unusually large for oil field production practice. The special, or rather uncommon, fittings of large diameter, plus the comparatively limited demand, have resulted in the development of distinctive "vapor pipe" from light weight "Henskin" materials. This conventional light pipe of from 4" to 16" diameter is readily available, but from that point on the finished installation, trial and error, experience, engineering, brainstorms, common sense and "the nature of the beast," have all put in their appearance.

The basic purpose of vapor recovery is the conservation of gas from stored petroleum but the vapor system does more than just salvage gas that would normally be lost to the air. Because the system operates under a slight pressure, high end evaporation is retarded, resulting in some cases of a gravity saving of over 3 degrees. This is extremely important in low gravity crude. A vapor system also requires gas tight decks which in turn reduces the fire hazard. Internal rusting of the tank in the vapor area is slowed by keeping out water vapors and oxygen of the air. These secondary items may in themselves be of sufficient value to warrant the installation of a recovery system but are of such intangible value that in only rare cases they may be considered in "Payout" calculations.

All of these lead to strict problems of vapor pipe fabrication and installation. Normal production practices must not be changed appreciably, nor is it logical to change existing facilities to approach ideal conditions for vapor recovery. The resulting compromise has proved to be very practical and economical.

Nearly all the storage vessels for unrefined crude oil and many refined products are tanks so designed that ounces of pressure or vacuum will cause serious damage. This immediately sets high and low operation limits within which all vapor recovery systems operate. These pressure limits are balanced against the speed with which tanks are emptied or filled to determine the volume displacement without regard to gas given off by the product. The flow of vapors within the closed system




1 Plain Header Light Weight Pipe With Flanged Ends
2 Headers With One Or More Outlets
3 Crosses And Tees For Lateral Connections
4 Risers For Use With Tanks Of Varying Height
5 Lateral Knee
6 Hillside Spools With Bottom Flange To Fit Deck Slope
7 Take Off Assembly With Stack
7a Stack
7b Tee For Connection To Header
7c Take Off Leg With Connection For Regulator
8 Overshot Take Off Assembly
8a Top Section
8b Bottom Section
Bottom Of Lateral Connection Lower Than Body For Condensate Drainage
Reference Drawing Numbers
A-1786 Vapor Pipe Flange Details
C-1752 Specialty Details
C-1801 Typical Vapor Piping Assembly
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Typical Parts For Vapor Recovery Piping
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must be such that the pressure limits are not exceeded. To accomplish this, gas must travel from one tank to another through the vapor piping. Along with large diameter pipe and low restriction fittings, take-off and make up locations of each system must be given full consideration.

Unstable production conditions in both flowing and pumping fields add other troubles. Many occasions arise that require isolation, removal or additions in a tank farm to disrupt everything while changes are being made and should be avoided. Fittings so constructed that any unit or group of units may be readily blanked off is a practical requirement. The locations of vapor headers and laterals to individual tanks within tank farms, almost prohibits the use of crane assistance during installation, making it normal procedure to manhandle vapor piping into position. All of these items: Size, flexibility, inaccessibility, and only ounces of pressure per square inch to control, lend themselves to lightweight construction.

A typical vapor system consists of a large header through the tank farm with smaller laterals to each individual tank. The header is supported from the deck of the tanks, usually at the chines. The position of the laterals will act as sway braces resulting in a rather rigid finished structure. The header is flanged construction with flanges of 3/16" or ¼" material, bolt circle approximately 2¼" larger than the pipe diameters and holes for ⅜" or ½" standard bolts on 2" plus or minus centers. As each tank setting has its own requirements, the length of each joint and the fittings required are fabricated for the job. Risers in the header for tanks of different heights are "S" flanged units with long radius miters. Blank flanges at ends permit extension if needed and connections are saddled into the header with flanges that fit predetermined vent sizes.

Lateral takeoffs to the tank from the header are tees or crosses. These take-offs are designed with the bottom of the lateral line ½" below the bottom of the header which permits any condensate that may collect in the header to drain back into the tank. The lateral knee from the header is fabricated with a slight slope toward the tank to prevent any pocketing of liquids. The riser portion of this lateral connects to a hillside spool which in turn bolts to the deck of the tank.

The hillside spool in this general set up is the item of variable length, all other fittings and sections are held at the same elevation and if possible the same length. It is not unusual for field tank farms to be 3" to 4" out of level, requiring different hillside spool lengths for each tank. The bottom flange of this unit is fabricated to fit the slope of the tank deck. The extensive use of flanges throughout permits isolation of any vessel or unit without disturbance to the rest of the system by simply unbolting and inserting a blind.

The exact location of the hillside spool between the center of the tank and the shell does not seem to have a bearing upon performance of the system, but the location in relation to tank rafters and appurtenances is important. Free passage of vapors through this spool must be assured. The cutting of the hole in the deck for the vapor spool for tanks in service is in itself a delicate operation and should only be done by experienced workmen using approved non-sparking tools. It is normal procedure to cut into "hot" tanks, primarily because vapor recovery is in most cases an afterthought and seldom considered in original installations.

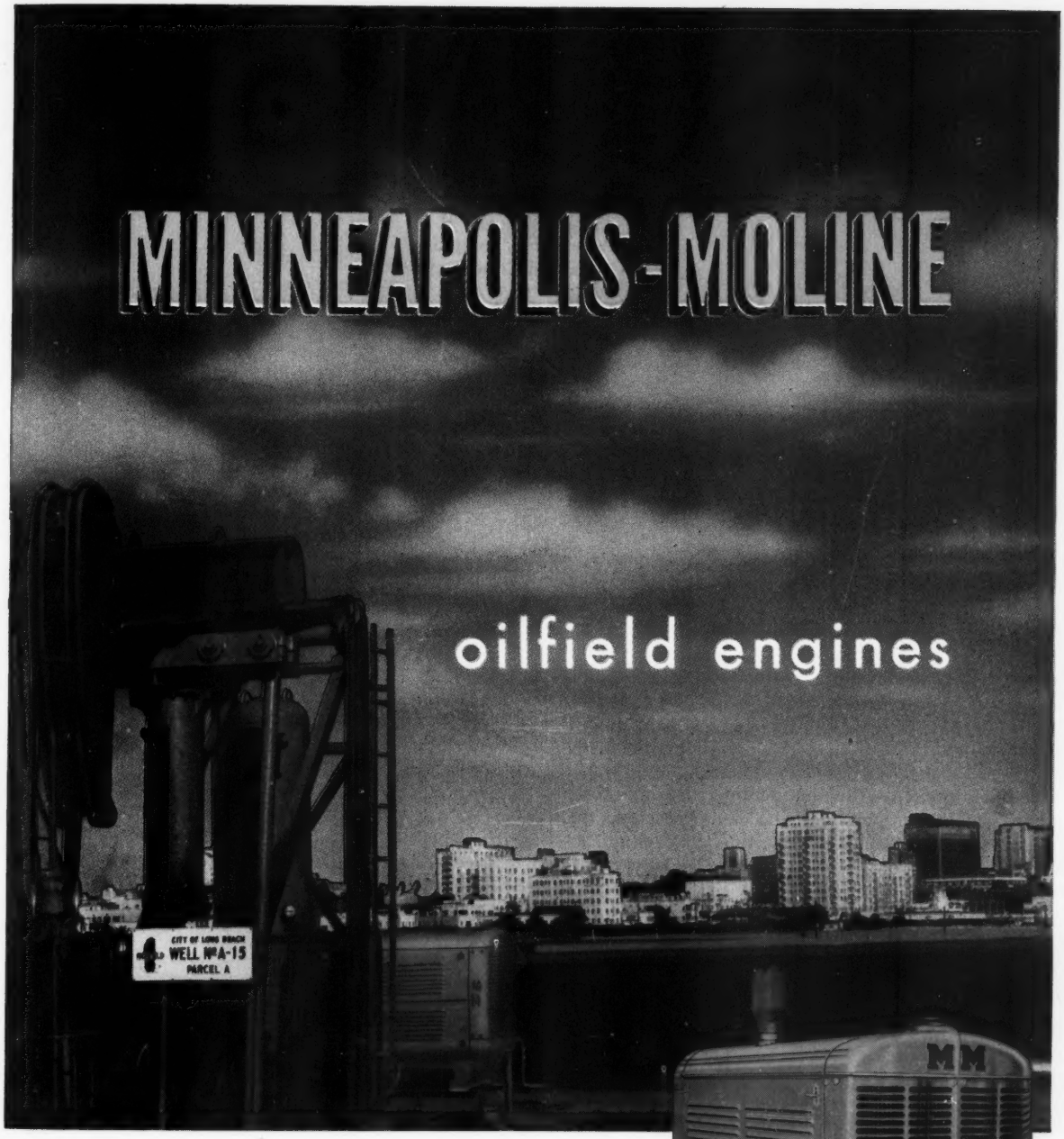
The final vapor take-off for excess vapors is a vertical line of either the "overshot" or "stack" design. Both units may be so constructed as to be the support of the major controls for the system. These control regulators function when the pressures within the vapor piping exceeds its set limits, an over supply of gas is taken away from the system and an undersupply is made up. The make up line introduces gas into the vapor piping at locations the most likely to demand replacement.

These various and probably, to many people, unimportant details, require rather careful preliminary work and an accurate survey of the tank farm. If the vapor piping is galvanized all parts must be prefabricated making a survey almost mandatory.

The actual installation upon the tanks of the vapor piping is a simple operation, usually taking no more than two man days per tank. The general procedure is to place main header in position upon its supports with the flanges bolted together. The laterals are temporarily placed and the hillside spools located and marked. The holes for the deck flanges are then cut and the laterals bolted into place. The vapor take-off line along with the major controls of the system are connected

MINNEAPOLIS-MOLINE

oilfield engines



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and the entire unit is tied into the final disposal equipment. This completes the "vapor piping" phase of the system. Additional work such as compressor setting, gas line installation and installing of special compressed vapor receivers proceeds in the conventional manner to final connections. The system is then put into the operation and with minor adjustments lost vapors are converted to a net income that cause management to wonder why it was not completed long ago.

Presented at Fall Meeting CNGA.

Design of Vapor Recovery Systems

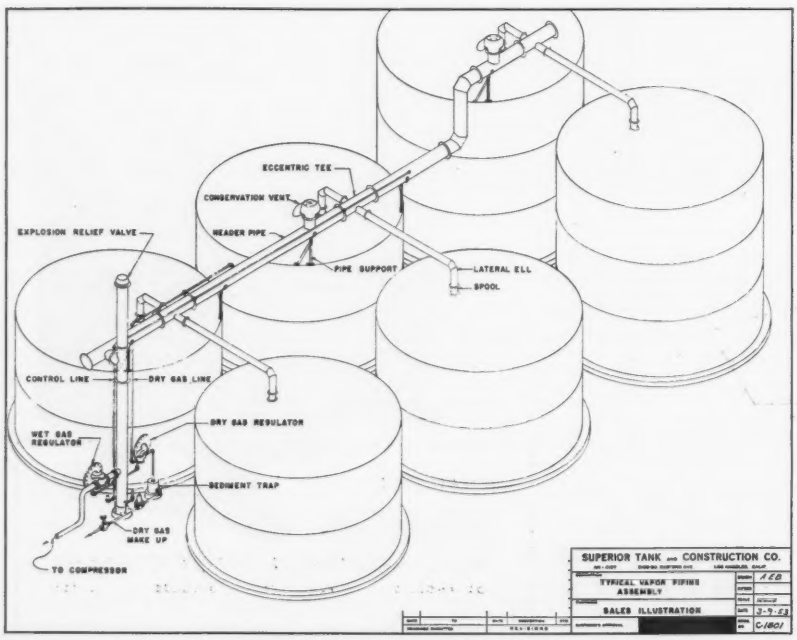
By Albert H. Tompkins
Superior Tank and Construction Co.

Most producing oil companies in California have recognized the importance of vapor recovery as a phase of conservation and a source of additional revenue. The installation of vapor recovery reduces the hazard of fire and explosion by excluding air from the tanks and preventing a dangerous gas-oxygen mixture. Vapor recovery equipment also reduces evaporation losses and conserves the gravity of the stored oil. Most of the advantages of vapor recovery can be expressed in dollars and cents and the others as safety and good practice.

Vapor recovery systems are usually designed from an economic viewpoint, the exception being, design for air pollution abatement. The very nature of pollution abatement demands that the system be designed to prevent the maximum quantity of vapors possible from escaping to the atmosphere while the economic design delivers the maximum vapors possible at the optimum installation and operation cost. It is not within the scope of this paper to enter the highly controversial field of abatement design versus economic design except to observe that pollution abatement installation should in most cases "pay its own way" and in some cases be profitable if abatement demands are kept in reasonable limits.

Vapors from tank batteries usually represent a small per cent of the gas from a field, averaging about 1%, but the amount of liquid products from this vapor may represent 10% or more of the liquid products from the field gas. A comparison of gasoline content of tank vapors and lease wet gas will generally show the tank vapors to be the "cream" of the wet gas collected. It is for this reason that "pay-out" periods of 2 to 6 months are common and to be expected.

Production storage tanks are usually preceded by one or more stages of gas and oil separation operating from 0 to 120°F above atmospheric temperature and 10 to 100 PSIG. In some cases a wash tank may constitute the last stage of separation where operation is at atmospheric pressure. If the production tanks are not preceded by a separator or wash tank, they become the last stage of separation. In any case, the oil is unstable as it enters the wash tank and/or the production tanks and the stability is a function of the temperature of the oil, the surface area of the oil and the length of time the oil is in the tank. An increase in temperature and decrease in pressure results in the dissolution of the lighter ends and evaporation of the heavier ends while the surface area and time in storage affects the rate and amount of vapor evolved. Volume and gasoline content of the vapor from a wash tank are therefore larger than from the subsequent storage tanks. The design of a vapor recovery system is based on five important factors: (1) specific gravity of the vapor, (2) volume of the vapor, (3) allowable pressure drop in the system, (4) required pressure drop in the system and (5) diameter of the vapor piping. In addition to these, several other factors are required for an economic analysis: (a) gasoline content of the vapor, (b) liquid recovery efficiency and (c) product prices. Factors (1) (2) and (a) are determined by a survey of the tank battery and (3) is fixed by maximum recommended pressure to be carried on the tanks. The sizes of the vapor piping (5) can be determined from the above so that the actual pressure drop for the system (4) falls within the limits of the allowable pressure drop (3). The volume of vapors (2) is usually determined with an orifice well tester or an anemometer and the standard CNGA charcoal test to determine the gasoline content (a). The survey should extend over several days or a week if possible to average out temperature variations and should



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be conducted with the full cooperation of the production department.

In the absence of actual measurements, tank vapors can be estimated within reasonable limits from gas-oil ratios and operating data. The volume of gas separated from the production before the wash tank or storage tank can be deducted from the volume of gas calculated by the gas-oil ratio to approximate the volume of gas expected to be released in the tank. This volume is to be added to the estimated evaporation and filling losses to obtain the estimated total volume of vapors.

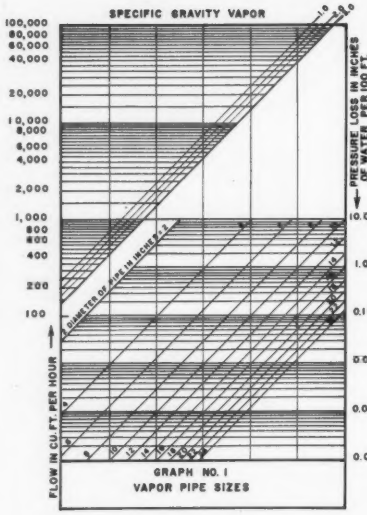
Evaporation loss is defined as the escape of product in the vapor phase from the system regardless of the nature of the escape. This broad classification is composed of such processeses as vaporization, boiling and breathing.

Vaporization is the change from liquid to vapor state without boiling and occurs at the surface of the liquid. Each component vaporizes until equilibrium at the particular temperature and pressure is reached after which the net change from liquid to vapor state is zero. If the component is allowed to escape to the atmosphere, equilibrium is not reached and vaporization proceeds.

Boiling is the change from liquid to vapor state where the partial pressure of the liquid tends to exceed the total pressure over the liquid as compared with vaporization, where the partial pressure is always less than the total pressure. Boiling is not commonly encountered in lease tank batteries. Breathing is used to denote the expulsion of vapor by an increase of vapor space temperature in a tank. This may also be termed thermal expansion of the vapor space, and can be calculated with sufficient accuracy by the gas law $V_1/T_1=V_2/T_2$.

Vaporization and breathing losses are grouped in the method of estimating presented by D. E. Larson[1] and considered separately in a review by the API Group "A" Subcommittee[2]. These methods relate in particular to motor gasoline but can be used for crude oil with the appropriate changes in vapor pressure and operating variables.

Filling loss is the displacement



GRAPH NO. 1
VAPOR PIPE SIZES

of vapors by the flow of liquid into the tank. Agitation during filling also releases gas and vapors from the liquid as may be expected since the tank is considered as the last stage of separation. The displacement loss may be calculated as the actual displacement of vapor by liquid or obtained from the above cited literature. Appropriate factors are used for the condition of the tank and fittings and the color and condition of the paint on deck and shell. In the case of insulated tanks, the evaporation loss reduces to vaporization if the liquid temperature is maintained fairly constant.

In tanks where the liquid temperature varies with atmospheric temperature there will be a period of "cooling off" and contraction of the vapor space. In most cases, this vapor demand is off-set by vapors from the tank being filled; the vapors from the filling tank going to the point of demand instead of being removed from the system by the wet gas regulator. In tanks, insulated or not, shipping creates a vapor demand to replace the liquid withdrawn and it is not always within the limits of the system to supply the amount of vapors required by these demands. It is for this reason that, in most installations, an outside source of dry gas is supplied to the system to supplement the vapors from the system during the periods of vapor demand. A vacuum in the system is sensed by the dry gas regulator which supplies dry gas until the system pressure returns to normal.

Configuration and height of the tanks in the battery determine the physical layout of the vapor piping. A take-off point on the header may be at one end of the battery or in the middle of the header as conditions dictate. A small battery of four to eight closely spaced tanks is the usual condition encountered and presents the case where the battery can be considered in one system. A large battery consisting of upward to 20 tanks remotely separated presents a more difficult problem since it may be necessary to divide the battery into two or more systems. In some cases, a large battery can be served by a main tapered header with branch headers to the remote tanks.

For the purpose of illustrating the design of a system, a battery of six tanks in two lines with five feet shell spacing will be considered. A main header is to be located between the two lines of tanks and to extend the length of the battery with laterals from the header to the deck of each tank. The header and laterals are divided into groups such as A-B, B-C, and etc. See Diagram[1]. The number of fittings is determined for each branch and expressed as equivalent feet of vapor pipe. The sum of this and the actual feet of pipe is the equivalent feet of pipe and fittings in each branch. Since it is desirable to maintain a uniform pressure drop throughout the system, the pressure drop in each branch is the percentage of the allowable pressure drop for the system as determined by the ratio of the equivalent feet in the branch to the equivalent feet in the system. The pressure drop in each branch is expressed as actual pressure drop for the branch and as pressure drop per 100 feet of pipe. Entering Graph 1 with the volume measured or estimated for branch A-B, the specific gravity of the vapor and the pressure drop per 100 feet of pipe, the size of the vapor piping and fittings is determined for the branch. This process is repeated for all branches until the wet gas regulator is reached. It is important to remember when considering the volume of vapor in the header, that the

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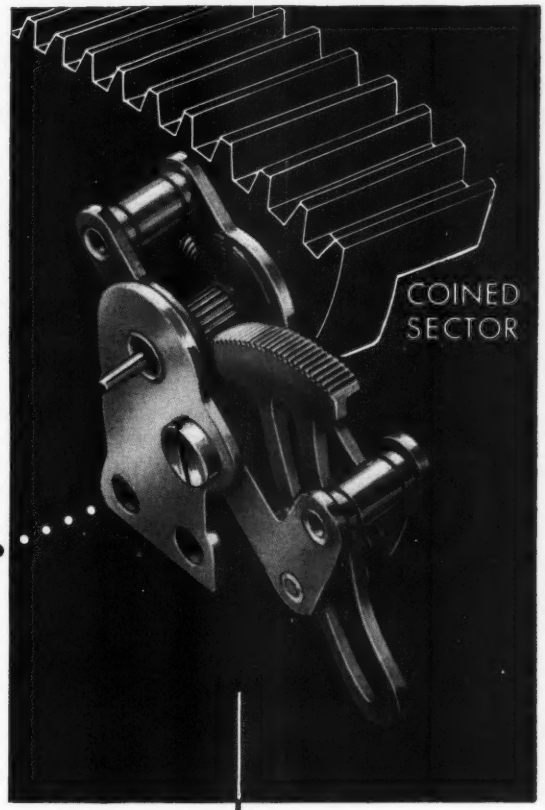

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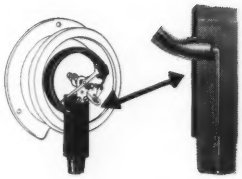

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volumes from the tank laterals are additive in the header. The small allowable pressure drop for a system, usually ½ ounce or 0.875 inches of water, and the large volume of vapors involved require pipe diameters much larger than are normally encountered in other phases of production.

Conservation vents of sufficient area to vent the tank vapors in case of vapor pipe fouling, system overload or compression equipment failure are installed in strategic locations on the header. These vents not only open to the atmosphere if the pressure on the vapor system exceeds the usual setting of ½ ounce but also admits air to the system if a vacuum on the system exceeds ½ ounce. It is also customary to install an explosion vent on the takeoff line to relieve the header of excessive pressure in case of an explosion in one of the tanks. This vent is normally set at about 4 ounces of pressure.

The pressure drop through the wet gas regulator is usually included with the pressure drop in the piping from the wet gas regulator to the scrubber and compression equipment. Compression may be by means of a conventional compressor or a blower depending on the operating pressure of the field gathering line. Blowers may be used to deliver vapor up to 6 or 8 psig. and have the advantage of large capacity and low initial cost. In some fields, notably Santa Fe Springs, where the field gathering lines are under vacuum, compression equipment is not required to deliver tank vapors to the gathering lines. In most cases compressors are required to deliver the tank vapors to the gathering system. The availability of small economical compressors has permitted installations for relatively small amounts of vapors where otherwise a satisfactory "pay-out" could not have been shown.

The sizing of compression equipment varies from the maximum vapor volume determined by measurement or estimation to some percentage of the maximum volume within the limits of economic operation and initial cost.

Conclusion

Vapor recovery affords operators additional revenue, conservation of gravity of stored oil and a reduction in fire hazard. Tank vapors represent a small fraction of total gas but is the "cream" of the wet gas. Gasoline content ranges as high as 15 to 17 GPM and may represent 10% or more of the liquid in the total gas from a field. "Payout" periods of 2 to 6 months are common and to be expected. Design of a system is based on 5 main factors: (1) specific gravity of vapor, (2) volume of vapors, (3) allowable pressure drop, (4) required pressure drop in system and (5) diameter of vapor piping. The normal design is an economic balance of maximum volume at optimum installation and operating costs. Physical layout of system will vary with heights of tanks and configuration of tank battery. Most systems include means for supplying dry gas to offset vapor demand of systems during "cooling off" and shipping periods. Some recovery systems are operated without compression equipment and others use blowers or compressors, depending on the pressure on the wet gas gathering lines. Availability of small inexpensive compressors has made many small installations profitable for small volumes of tank vapors.

[1]Larson, D.E.: Conservation in Petroleum Storage, 1948.
[2]Subcommittee "A": Symposium on Evaporation Loss, API, Vol. 32(1) 1952.

Presented at Fall Meeting CNGA.

Monterey Oil and Texas Co. Upheld by Decision

The decision of the California Supreme Court to deny petition of appeal to the City of Seal Beach in its suit to establish jurisdiction over contiguous submerged ocean lands within the three-mile limit, gives Monterey Oil Company and The Texas Company freedom to proceed with the construction of their drilling island one and one-half miles off Seal Beach, and to engage in subsequent drilling operations from the site that will thoroughly test their joint 1400 acre state lease.

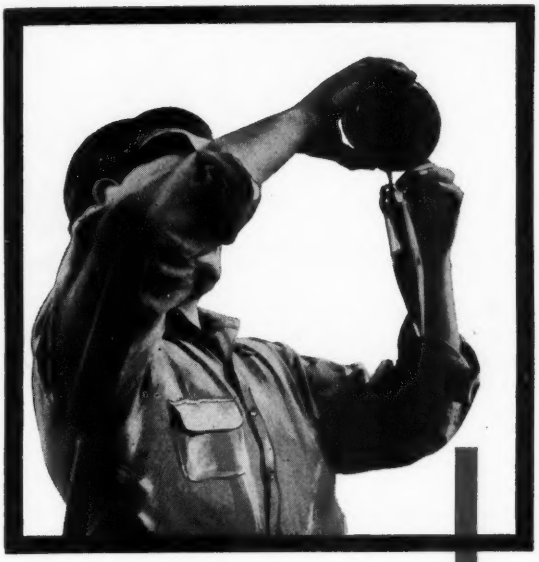
According to Howard C. Pyle, president of Monterey, equipment is already being moved in and work on the island will be resumed. It will probably take about three months to complete the site, immediately after which the first well will be spudded.

Choice of the island location followed some interesting exploratory drilling that was done approximately five years ago. Monterey drilled a number of wells from an upland location at that time, one of which, State No. 2, was carried directionally to a total footage of 12,131 feet, with an actual vertical depth of 5772 feet. The derrick was situated inland 2400 feet from the water's edge, and the well was bottomed 7500 feet offshore, the deviation of the hole from vertical at times reaching as high as 80 degrees.

The producing interval of this well is directly in line with the easterly trend of the Wilmington field. Since completion, it has consistently yielded about 30 barrels a day of 26 degree gravity oil, and extensive coring and geological studies indicate that this production comes from the Ford Pool. The island site well will be drilled vertically and will test the whole sequence of producing horizons normally encountered in the Wilmington field.

Bolsa Chica Gives Union Bandini Option

Bolsa Chica Oil Corporation has granted Union Oil Company an option on one-half of its 10 per cent operating interest in a 1000-acre block of leases in the Bandini district of East Los Angeles. The lease block was the scene late last September of an important oil discovery by General Exploration Company. Others sharing interest in the development included Bolsa, Basin Oil, National Oil, Christopher Oil and C. G. Willis. The well at present is putting out 250 barrels of crude oil a day, under restrictions. President Rouse Simmons of Bolsa said the option was assigned to Union for a consideration of $100,000. When certain additional test drilling is completed, Union may wind up the purchase of one-half of Bolsa's interest for further payment of $250,000, he explained.



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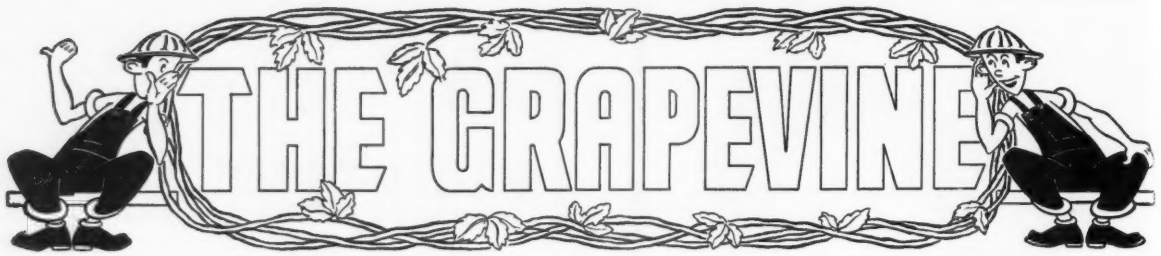

One of the most constructive Nineteener meetings in Nineteener history took place recently when the members of this amazing fraternity of sod heavers foregathered at the Del Mar Hotel near San Diego and, using, the famed hostelry as an operating base, launched a vicious and entirely unwarranted attack on the lovely fairways of Rancho Santa Fe. It was the occasion of the semi-annual Calcutta and as usual it brought out to the deep southwest an imposing swarm of high brass from such scattered centers as New York, Chicago, Milwaukee, Houston, San Francisco, and even Mexico City. Also present, of course, in goodly numbers and rare fettle, were a stash of Angelenic members, led by their new Big Shot, Len Price, and where he led them is something a lot of people would certainly like to know. Anyway, as already remarked, it was a surprisingly productive bit of convening from which we ourself profited no end in increased friendships and frolicsome exercise.

The group that flew in from New York by private plane included Les Baldwin, noted color photographer, and Jack O'Brien, efficient organizer of the transcontinental jaunt, both vice presidents of Johns-Manville Company, and both lovely people; Joe Taylor and Bill Beck, top purchasing executives of Socony Vacuum, as widely known and well admired here as they are in the village of New Amsterdam; dapper Frank Shlemmer, eastern representative of Pacific Valve Company, and the beau brummel of the Nineteeners; Hank McAdams, ex-prexy of New York Nomads, manager in the big city for Jones & Laughlin, and a gin rummy sharpie if we ever saw one; Elmer Ogden, Columbia Rope higher upper, and the Benny Hogan of the New York contingent; Bill Behrens, the genial Sortilege dispenser for the group and a popular habitue of the Stork Club; Jack Rowland, consequential contractor in and around Manhattan; Howard Bratches, former west coaster, now top procurement officer for Shell Oil Company; and the little giant, Joe Comer, who putts excellently from a distance of 40 feet, pilots airplanes, and on top of these qualifications does a fine job of representing the William Powell (Valve) Company in the so-called effete east.

From Texas came that famed southpaw, past Big Shot of the Nineteeners, and former holder of the Los Angeles Petroleum Club's card No. 1, Paul Huggins, vice president of Gulf Oil Corporation; Al "Dutch" Zwerneman, former Angeleno, known favorably to almost every oil man between Maine and Manhattan (Beach, that is); and Eddie Fisher, recently retired Mid Continent and Gulf manager for Pacific Wire Rope, one of the best story tellers in the Lone Star State, and nobody's pigeon in any kind of speculative skullduggery. The home town of Madame O'Leary's famed bovine was well represented by one, Dr. Dave Braithwaite, research engineer of National Aluminum, and we'll bet four dollars he made some of the biggest discoveries of his technical young life at Del Mar. Out from Milwaukee, Wis., came Hal Detrick, vice president of A. O. Smith, who some years ago distinguished himself in a midnight golf tournament at Annandale Country Club which he won hands down—and knees down, too, with a flashlight yet. Then there was the Francois Villon of Mexico City, Charlie Schneider, who has proved to the medical profession that sleep is nothing but a luxury. Those who ought to know, tell us that he hasn't been to bed since late in 1949. The only person who can actually testify to this is Henry Paulsen—he hasn't been to bed either.

Returning to the out-of-towners, however, there was a nice delegation from the Bay City, sporting such interesting folk as Claude Lane, Standard of Cal's top purchasing executive who would never lose a Calcutta if he was as accurate with a brassie as he is with a 12 gauge shotgun; Dick "Seabiscuit" Townley, the C. F. Braun biggie who once picked seven winners at Bay Meadows and would have had the eighth, too, if he hadn't run out of money; and George Rugg, purchasing chief for Bechtel Corporation, a personable sort of chap who bore on his blazer the insignia of the Royal Canadian Yacht Club and consequently never smokes abaft the binnacle. Other guests who helped to electrify the limpid atmosphere of Del Mar were Ty Tyberg, a retired Ducommun higher-up; Sid Hayes, a nicely mannered and good looking young Jones & Laughlin rep who astonishingly enough, turned out to be a son of Doc Hayes, the lexicographer and drilling contractor; and Ed Largey, the public relations chief from Triangle Steel Company, whose interesting photos, shown here, help to illustrate the deep significance of this practically international whingding.

It might be mentioned, by the way, that the dinner on Saturday night brought out some of the best—well, at least, the most insistent—chord playing since the death of Paganini. In a moment of temporary aberration, the newly crowned Big Shot, Len Price, called on Roy

STOP BREATHING

Guiberson H-2 Anchor with Type D Swivel Tension Bleed Joint

Guiberson H-2 Anchor with Type A Pressure Operated Bleed Joint

Watch lift costs go down... production go up with GUIBERSON'S H-2 *hydraulic anchor for pumping wells*

This anchor stops rod wear because it *stops breathing* — holds positively against all forces tending to cause movement of the string. Pump operation is more efficient — production is increased — lift costs are lowered.

Automatic action — no manipulation of tubing string is necessary with the H-2. As soon as fluid level in tubing is higher than casing fluid level, a series of *individual piston slips,* operating hydraulically and independently of each other, put a positive grip on the casing. Right from the start you save with the H-2 anchor. You save on first cost because the H-2 is exceptionally low cost. You save on crew time and money because the H-2 is reliable in operation — easy to set and release. You save wear and tear on your string — start lifting more fluid at lower cost.

TYPE D SWIVEL TENSION BLEED JOINT—Available in 2" or 2-½" tubing sizes. Either size shears with approximately 20,000 pounds tension at the joint. Ports in joint open when ring shears, allowing tubing to drain and thus release anchor.

TYPE A PRESSURE OPERATED BLEED JOINT — Available in 2" or 2-½" tubing sizes. Blow plug is available in 1,000 p.s.i. increments from 3,000 p.s.i. to 6,000 p.s.i. Plug ruptures when pressure differential reaches plug rating. Joints should be ordered rated approximately 1,000 p.s.i. above expected operating pressures.

Guiberson's H-2 anchor may be released by normal methods of equalizing tubing and casing pressures or with either of the above two bleed joints.

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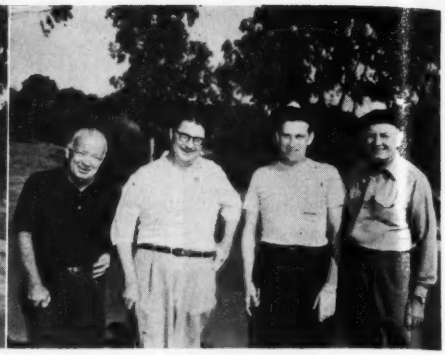
PESA

Pictured at Nineteeners' Meeting

Bill Cline, Bill Farrar, Len Price and Hal Detrick.

Howard Chapman, Wendell Jones, Dr. Dave Braithwaite and C. H. "Tut" Tuttle.



Joe Comer, Bill Beck, Frank Shlemmer and Howard Bratches

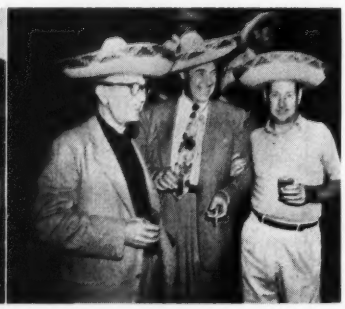
Charlie Schneider, Paul Whiteley, Jack O'Brien and George Rugg.

C. H. "Tut" Tuttle, Roy Johnson, Sam Patterson and Hans Ross.

Charlie Perkins, Joe Taylor, Monte Lindmoe, John McLeod. Standing: Lev Sacre.

Leonard Price, Paul Huggins, Al "Dutch" Zwerneman, Ken Norris, Ward Blodget.

Out-of-state contingent poses with welcoming orchestra at Del Mar Hotel.



Les Baldwin, Jack Rowland and Len Price.

Ward Blodget, Doc Hayes, Dale Russell, Elmer Ogden and Joe Aderhold.

Fred Currie, Rand Hogan, Fox Boswell and Al Dragge.

Left to right: Hank McAdams, Charlie Schriber, Sid Hayes and Jim MacDonald.

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Keep your eye on the Globe "4-Cutter" Jet. It's a big hit in the drilling industry. And for good reason . . .

Engineered critically, tested thoroughly, proved profitably . . . the Globe "4-Cutter" Integral Jet Rock Bit has a reputation for reliability with drillers everywhere. It's a powerful weapon in your war against time!

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GLOBE "4-CUTTER" INTEGRAL JET ROCK BIT

Johnson to play a chord, in typical theatrical style, to stop the chatter. It would have been a lovely idea except that Roy went into mass production and the deluge of chords that followed could easily have been combined into an oratorio or something. Monte Lindmoe, the Southwest Welding Company's singing star, attempted his inimitable version of "I Get the Blues When It Rains" but was completely engulfed in the determined chorus of a pretty thing, entitled, "Down On The Farm." Indeed, this entire session was one of uninterrupted interruption, during which, under the sporadic conducting of Maestro Hans Ross, the members of the two-piece orchestra, Roy Johnson, pianist, and Mischa Tuttle, violinist, went their separate and dissonant ways.

For some reason or other, the Sunday session was strangely subdued as the boys tackled the second half of the 36-hole Calcutta. It was won, incidentally, by Carl Totten, the Shell public relationist, who is reputed to have shipped the bullion to New York as a cushion for future gin rummy adventuring. Others who shared in the loot were Sam Patterson, the handsome Bankliner, whom we would rather be like than president; Percy "Twinkletoes" Hayes a bit of Universal upper crust who hasn't been in the rough since the last depression; Lev Sacre, the Nineteeners' almost indestructible Hook Shot, and, mark you, that name has nothing to do with his golf; Bill Conroy, the always entertaining Irish raconteur, from National Aluminum; Jack Perrin, the young, sturdy scion of a noble house—his dad, Jay, was probably the principal founder and first Big Shot of the Nineteeners; Phil Hauck, The Texas Company purchasing chap, recently transferred from New York and much enjoying the experience; Len Price, the brush topped current Big Shot whom we were fortunate enough to have as a roomie; and John Robinson, a nicely demeanored lad from the Macco Corporation who loses as cheerfully as he wins—a rare trait.

A few nights later at the Annandale Country Club, the out-of-town people were hosted by Fred Currie, the Copperweld proprietor, and immediate past Big Shot, Hal Davis who specializes in drums and pipe line pigs. This affair is by way of becoming an annual event which is by all means "a consummation devoutly to be wished," for in the quietness of this attractive institution, there is rest and relaxation for the visitors from the somewhat rigorous preceding few days. In addition to most of the guests already mentioned, Fred and Hal gathered together some other distinguished denizens of the derrick groves, as follows and to wit: Bill Floyd, purchasing agent for the Shell Oil Company at San Francisco, whose recitation in the Italian dialect of a very pathetic incident was one of the highlights of a well highlighted evening; and Tony Grant, vice president of Rheem Manufacturing Company, a gin rummy player of national repute.

Also present were: Bud Williams, the affable General Petroleum buyer, and Ollie Branyon, the procurement whiz from the same August organization. Here's a lad with whom we have sung many a stirring roundelay at industry donnybrooks and whom, to tell the truth, we erroneously retired in the public press a short time ago, and whom also we now, with a very red face, restore to his rightful spot in the scheme of things; Emory Squires, assistant purchasing agent for Richfield, a gentleman of fine repute; Jim Ross, the noted Caledonian, who is Paul Whiteley's right arm in the house of the aviating gee gee; and last but far from least, Don McKenzie, the Key Company chap, who has all the attributes of a Scotsman but the burr and knows more about marijuana than Joe Friday. In retrospect, we can sincerely say that this particular soiree, which, we forgot to mention, was preceded by 18 holes of greatly diversified golf, was a wonderful wind-up to a most entertaining season, and we are certainly in-

The Lufkin Line

By VIC FAWCETT

CNGA FALL MEETING

The California Natural Gasoline Association with its registered membership of over 900 can justly be proud of its vigorous growth. This organization, representing an energetic industry, started in 1925 with a membership of 30.

Any one who has had the pleasure of attending one of its shindigs —be it a golf tournament, a whing ding or a fall gathering—realizes that these boys are among the finest. Having fun or conducting a business operation, CNGA has the enviable reputation of doing the job thoroughly and efficiently.

Held at the Ambassador Hotel, I thought the highlight of its proceedings took place following the banquet when Union Oil Company's Jim Watson ascended to the stage to participate in the entertainment interlude.

Jim has always been highly regarded by his association as a top engineer, but he must have hidden talents that even transcend his engineering ability.

After all, out of more than 700 attending the banquet Jim was hand picked from the audience by a most charming and delightful performer—a torch singer. In true CNGA manner, Jim handled his job EFFICIENTLY.

It may be hard for any one to figure out where Lufkin fits into this picture, but suffice it to say that in problems of heat transfer, Lufkin's Right Angle Spiral Bevel Gear Reducers, especially designed for aerial coolers, hooked up with a 20 ft. diameter fan, will do wonders in cooling the ambient air—even on a stage.

We are looking forward to CNGA's next banquet—or gathering. Here's to its continued success and growth!

Vic Fawcett

(Lufkin produces the finest . . . Pumping Units . . . Gear Reducers . . . 2 Cycle Gas Engines.)

Why Shaffer is headquarters for pressure control equipment!

No matter what *your* requirement in pressure control equipment—Cellar Control Gates, Blowout Preventers, Casing and Tubing Heads, Flow Beans, or other equipment for controlling pressures in modern drilling and production operations—nowhere else will you find as complete a selection of such equipment as at Shaffer.

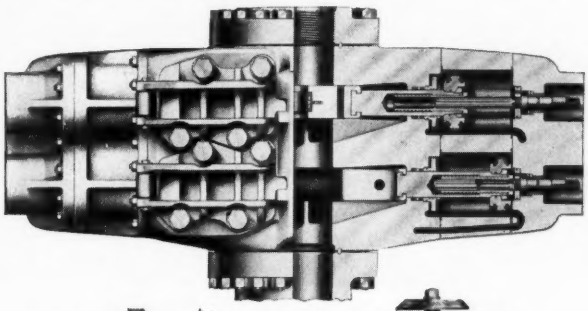
For example, in Cellar Control Gates alone, Shaffer provides a choice of *Hydraulic* or *Mechanical* types—and in each type a choice of *Double* or *Single* design. Also, you get a choice of *two* different types of Blowout Preventers . . . of *many* different types of Landing, Casing and Tubing Heads . . .and even Shaffer Flow Beans are available with *three* different types of tips to meet *your particular* needs. Best of all, every Shaffer product is backed by over a quarter-century of pressure control dependability and experience!

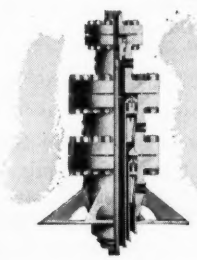
Only Shaffer provides such pressure control advancements as outlined below . . .

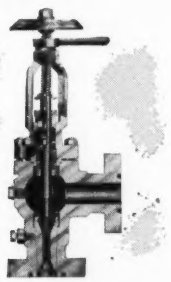
Shaffer Hydraulic Cellar Control Gates

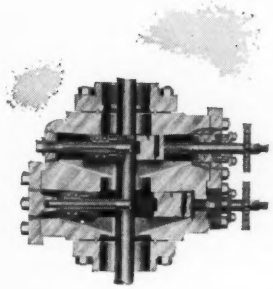
- Available in both *Double* (illustrated) and *Single* types.
- Both types are amazingly compact . . . Double (with *two* ram compartments unitized into *one* body) is only 30" high in sizes as large as 13⅜" (12" Series 900) . . . Single is only 18½" high in same size. Smaller sizes even less!
- Unmatched simplicity in changing rams—simply unbolt two doors, change rams, close and bolt the doors. Rams are automatically aligned as doors are bolted shut!
- Completely Enclosed Design . . . Quick-Draining Compartment Bottoms . . . Direct Hydraulic Drive . . . these and other exclusive features make Shaffer Hydraulic Cellar Control Gates the outstanding choice for all types of drilling conditions.

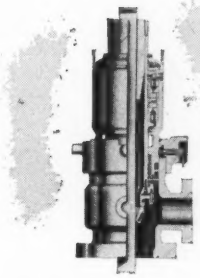
Be sure to get the complete story on this Shaffer product before you buy *any* cellar control gates. Available in a full range of sizes and pressure ratings!











SHAFFER MECHANICAL CELLAR CONTROL GATES

- Available in both **Double** (illustrated) and **Single** types for effective operation by an air motor drive utilizing the air supply available at most rigs—**plus manual stand-by protection!**
- Even in sizes as large as 13⅜" (12" Series 900) the Double type requires less than 29" cellar height, the Single less than 17½"!
- Rams are changed by simply removing **one** end cover . . . Quick-Draining Ram Compartments provide no place for detrimental mud accumulations . . . many other unique features make these gates outstanding in their field.

Wherever your operations call for mechanically-operated cellar control gates, Shaffer has the most advanced design available!

SHAFFER COMBINATION ROTATING BLOWOUT PREVENTERS AND STRIPPERS

—combine in one unit every necessary feature for complete pressure control while drilling.

- Maintains continuous seal around any element in the drill string—pipe, couplings, kelly, drill collar, etc.—**automatically,** whether string is rotating, being raised or lowered, or is stationary.
- Can be used with **any** standard kelly (square, hexagonal or octagonal)—and any type of drill pipe (coupled, upset or flush). No special drill string equipment is needed!
- Quick-Releasing Bonnet permits passing bits, reamers, other large-diameter tools through the unit quickly and easily.

Available in two types and in a complete range of sizes, nothing else equals a Shaffer Preventer for complete pressure control while the drill string is in the well!

SHAFFER LANDING, CASING AND TUBING HEADS

—meet every requirement for modern compact casing and tubing suspensions.

- Available in various types and packing arrangements. Base Heads and Combination Base, Casing and Tubing Heads are available for combining several units into one where space is at a premium.

Shaffer provides a full line of modern Tubing Heads, Multiple Zone Hook-Ups and other equipment to complete your pressure control installations.

SHAFFER ADJUSTABLE FLOW BEANS

—the *pioneer* adjustable flow bean, still unequalled in operating features.

- Available with Conical, Micro and electrically-heated Thermo Tips in both regular and hard metal designs to meet various drilling, production and refinery applications. All popular sizes—in both flanged or screwed connections.

Do You Have Complete Details on SHAFFER FISHING TOOLS?

Besides leadership in pressure control equipment, Shaffer also provides similar unique advantages in fishing tool equipment—*advanced* tools that combine several tools into one, tools that feature field-proven operating safety found nowhere else. Write for descriptive literature!

Write for your free copy of the new Shaffer Catalog.

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HIGH PRESSURE DRILLING AND CONTROL EQUIPMENT • FISHING TOOLS THAT EXCEL

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OKLAHOMA CITY, OKLAHOMA, Acme Oil Tool Company, 1001 S. E. 29th STREET
FARMINGTON, NEW MEXICO, Shaffer Tool Works, Post Office Box 546
CASPER, WYOMING, Shaffer Tool Works, Post Office Box 1788
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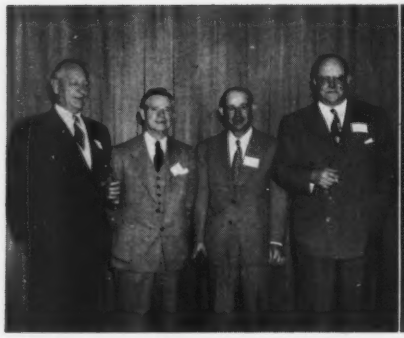
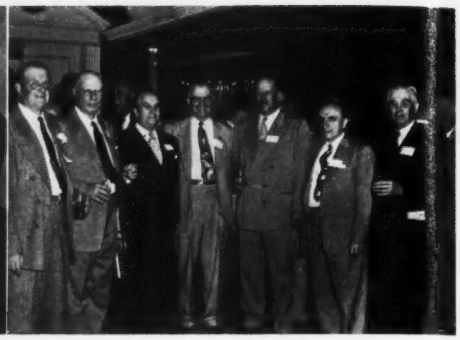
30 years OF OIL TOOL LEADERSHIP

Photos Taken at Petroleum Equipment Suppliers' Meeting



D. R. White, Jud Hillman, Jack Schmidt, and Mark Brown.

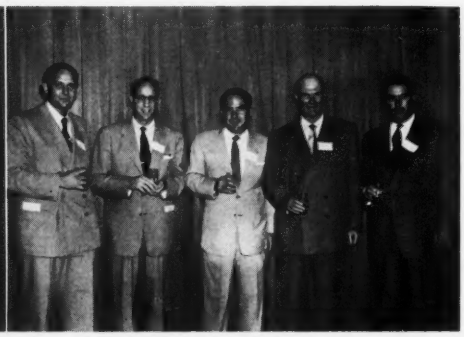
Bob Harcus, Ben Hilliard, Floyd Merritt, Howard Hoon, Garth Nicolson, and J. J. Pike.



H. H. Clark, D. Faulkner, D. Whelan, C. Baker, C. Van Loozen, W. M. Weis, and C. J. McLaren.

Basil Kantzer, Rodney Durkee, Ted Sutter, Jim Hughes, and Bob Safford.

Tom Ashe, Grover Nielson, Bill Wiley, and Tiny Roe



A. S. Marshall, A. M. Birnie, Frank Leonis, Lloyd McGraw, and Leon Wardle.

Geo. Trembley, John Hagn, Bill Wilson, Mort Higgs, and Jim Buckingham.

J. A. Crawford, W. T. Powell, J. J. Pike, John Merritt, and Wendell M. Jones.

L. T. Wold, Don Grubbs, H. Morehouse, J. Spalding, Ott Hammer, and Jules Toussaint.

debted to Fred and Hal for the privilege of sitting in on such an altogether enjoyable conventicle.

Another very illuminating assembly which it was our good fortune to attend recently was the Pacific Coast meeting of the Petroleum Equipment Suppliers' Association at the Biltmore Hotel. This was, as usual, most capably arranged by Walter Pusch, the western supervisor of the organization, and featured an extremely informative session in the theater, followed by an enlivening cocktail hour and an excellent dinner. Gracing the head table at the business conference were such luminaries of the oil equipment world as Floyd Merritt, Mort Higgs, Ted Sutter, Ott Hammer, chairman, Rodney Durkee, Bill Powell, and Wendell Jones, and then there were the distinguished guests, Jules Toussaint and Basil Kantzer. And, before we go any further, we want to compliment Ott Hammer on as nice a bit of MC'ing as we have seen in a long time. Ott's introductions were neatly, concisely and intelligently worded and his diction and general platform comportment were what the English call "tophole."

The speakers were Ted Sutter, in his usual fine job of analyzing the general situation as it affects the equipment manufacturer; Jules Toussaint, in a forthright disquisition on equipment sales attitudes and practices; Basil Kantzer, in a public relations offering that was interestingly presented and well received; Bob Safford, executive secretary, in an accounting of association doings, past, present, and future, in brisk and ef-

LESS THAN A *Pound!*

You can easily hold it between your thumb and index finger.

It is one of the many intricate castings made by Kay-Brunner for leading manufacturers. Producers of oil well tools, transmission machinery, agricultural equipment, concrete mixers, trailers, and ceramic equipment are among the many industries served by Kay-Brunner.

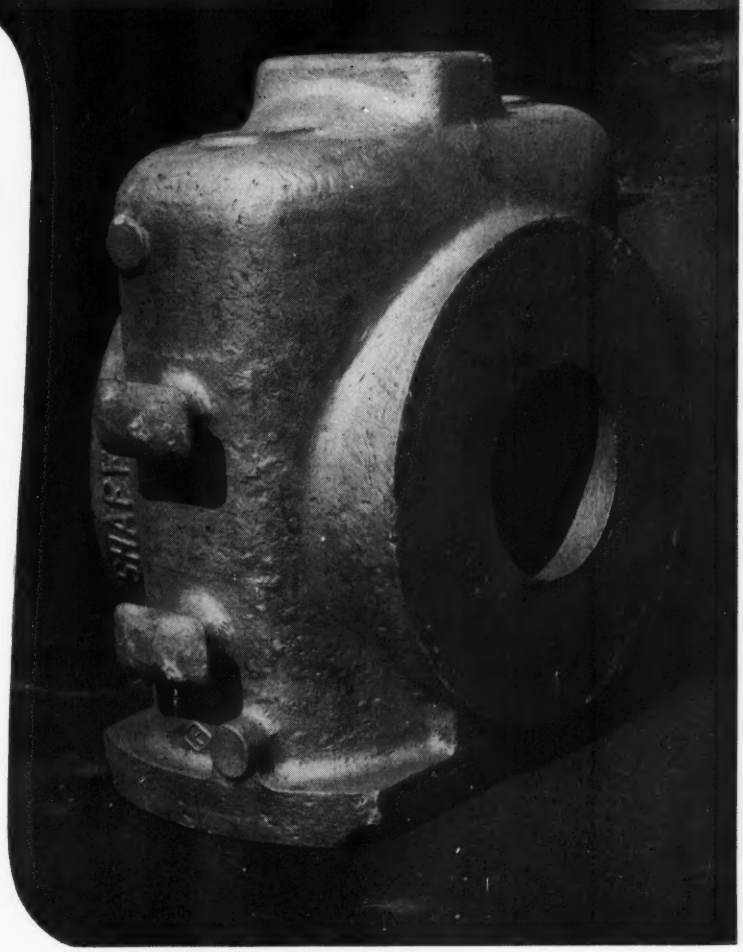
Regardless of how small the casting in weight or quantity, there are several good reasons why you should give it to Kay-Brunner!

OR MORE THAN A *TON!*

2,532 pounds, to be exact!

It's a giant casting, made of special steel to harness a gusher . . . KAY-BRUNNER high-pressure steel, of course. Made for The Shaffer Tool Works for their famous cellar control gates which are used the world over in oil drilling. It handles the highest pressures that oil drillers have ever encountered.

Many producers of large pressure units use Kay-Brunner for their casting requirements.



KAY-BRUNNER

KAY-BRUNNER STEEL PRODUCTS, INC.
999 MERIDIAN AVE., ALHAMBRA, CAL.

fective style; and Rodney Durkee, in a sort of historical summary and a projection or two that were well seasoned with appropriate humor. It was all very stimulating and, indeed, we thought it a most worthwhile interlude.

Needless to say, the cocktail hour was also stimulating and we had a thoroughly enjoyable time, mingling with the tool and service biggies. We were especially pleased to exchange pleasantries with the dean of all the equipment executives, Dave Faulkner, whose wonderful sense of humor and general cheerfulness are now as much of an inspiration as was his leadership in the heyday of his accomplishment. Out of 180 people, all of high caliber and exemplary morality, however, it is neither necessary nor nice to make selections for special mention, so we will merely content ourself by again handing the palm to Ott Hammer for an exceptional piece of direction and to Walter Pusch for an admirable bit of arranging.

From Yokohama comes a card written in the steady hand of that young fellow, Willie Learmont, who has just turned 88 but is nonetheless still galloping all over the universe. A couple of years ago, more or less, he made a trip to Scotland and now is out foraging around the Orient. He plans to call on his soldier grandson in Tokyo and tells us that at the moment of writing, he was aboard a magnificent ship, the S.S. President Wilson, on calm seas under a tranquil blue sky, with perfect service, hot entertainment, and beautiful women. Willie is an ex-Standard Oiler who, before he got into the oil business, was a noted British actor. On his last journey to the homeland, indeed, he found some of his old company billings in the Shakespearian museum at Stratford on Avon, and, ssh, he also found more beautiful women. Can't just figure out whether he purposely goes where they are or they can't help migrating to where he is. Anyway, they are usually in close juxtaposition or whatever you call it. Willie, by the way, also has the distinction of being the father-in-law of Ed Bedford, the Western Gulf geological whiz, and the aforementioned soldier grandson is Ed's boy.

Now for the last minute roundup, imagine our surprise the other morning to learn via telephone message from Rudy Schweitzer that we were the proud owner of a 1000 lb. steer. Through the generosity of Joe Siegel, we won this ambulating trophy in a prize drawing held for the benefit of the Bob Pyles' Boys' Camp. Unfortunately our boarder refused to move out and we had no place to stable the animal, so it looks as if he will just have to be converted into ground roundsteak and onions. The annual meeting of the PPP at Rodger Young Auditorium on December 5 is being confined to members only. It will feature presentations of famous pioneers, and other interesting sidelights that no member will want to miss, according to Ben Anderson, the livewire president of the organization.

City of Long Beach's Well No. Parcel A-51, with Richfield Oil Corp. as operator being put down by Fred Johnson, drilling contractor, on Terminal Island. Left to right: W. Barnes, driller; W. R. Downs, floorman; D. E. Bowden, floorman; L. Cheek, floorman and Kenneth Akers, derrickman.

Statement By Charles S. Jones Pres. of Richfield Oil Corp.

The conservation of California's natural resources is vital to the public interest, now and in the future.

This is true of water, soil, timber, oil and gas, and all our other natural resources.

Richfield, like many others, is aware of the responsibilities imposed upon us by these gifts of nature. We are also aware of the fact that in some instances we may not be fully discharging these responsibilities.

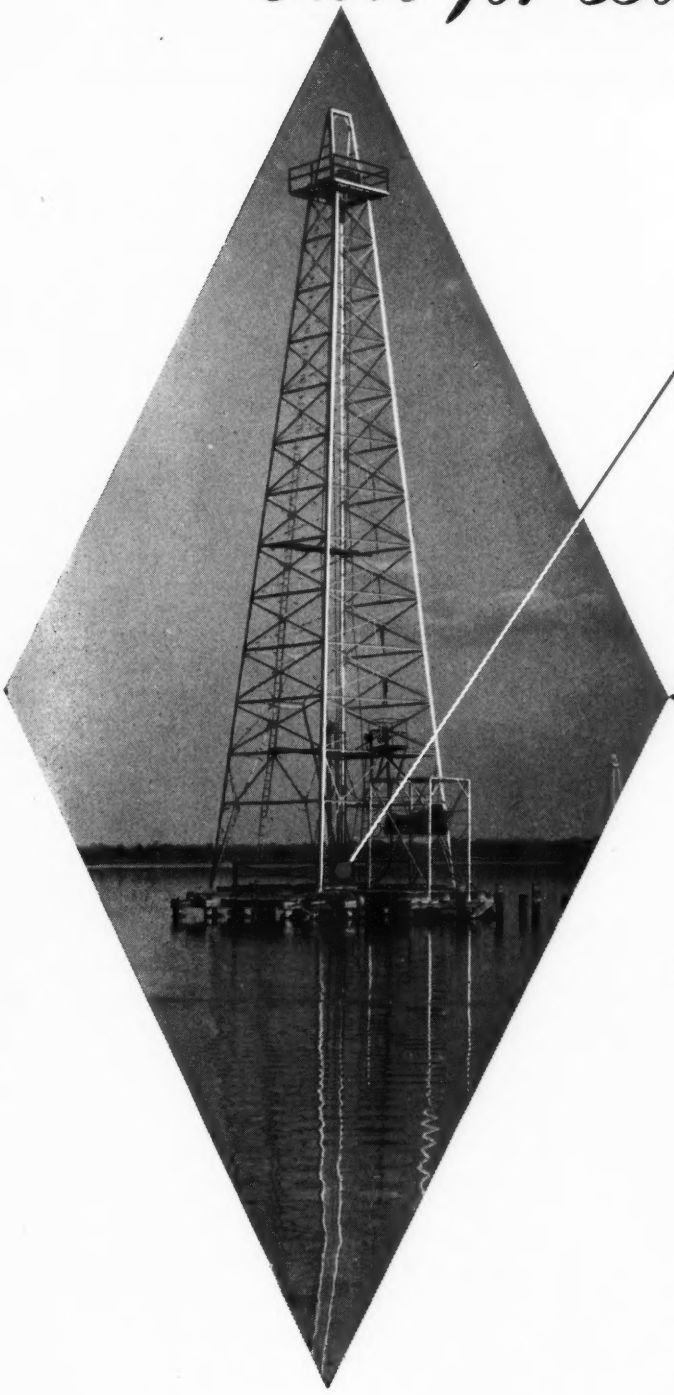
While experience and technical knowledge have taught us a great deal, maximum performance in the use of any natural resource depends upon public understanding of the need for sound conservation, and the benefits to be derived from it.

Richfield therefore is undertaking a study of ways by which we might be able to help bring about a wider understanding of the public's stake in this subject. We don't know just what can be done in promoting better conservation practices, but we think the matter is of such vast importance to us all as to justify our trying.

In undertaking this study as public service, Richfield of course freely acknowledges its own enlightened self interest in better conservation—conservation not for hoarding but for less waste and for more beneficial use of what we have.

Herbert Hoover, Jr. of Los Angeles Special Petroleum Advisor to U. S. Secretary of State Dulles, has left London, England, after conferences with British Government officials on the Anglo-Iranian oil dispute. Hoover flew by plane to England from Teheran, Iran.

Kobe for Better Pumping



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Field Development

Wildcat Set For Imperial County

Imperial County has been mapped out once again for a wildcat test. A new exploratory well will be drilled on ground about 18 miles southwest of the town of Blythe by Argyle M. Campbell of San Diego. Named Federal No. 1, the venture is located 2560 ft. south from the north line and 3186 ft. west from the east line of Sec. 6-11s-21e. The county long has intrigued some wildcat drillers. One of the most recent exploratory campaigns was undertaken by The Texas Company in several sectors. Many of these earlier tests were credited with showings, but apparently in every instance below commercial worth.

Universal Consolidated Oil Company has the drill going in its ambitious exploratory project in Beverly Hills and at last reports was making rapid time through the relatively shallow formations. Located on property of 20th Century-Fox Film Corporation, operations are going forward on a drilling island a short distance north of Olympic boulevard and west of Heath avenue. The island measures 200 by 300 ft. and has plenty of space to permit the taking down of 13 slant drilled wells.

In the Newhall area, famed in early mining years and later as a center of oil production, W. W. Bush has started his Bush Perkins No. 1 test on Sec. 11-3n-16w. Not many months ago, mud taken from an old well around 600 ft. showed grains of gold. Also in the primary operational stages is R. E. Bering & Associates' Perkins No. 1 on the section, which Camay Drilling Company will take down on contract.

Union Oil Company has two interesting tests working in Los Angeles County. Simi No. 23 on Sec. 9-3n-17w at Chivo Canyon is drilling at 5585 ft. Horse Meadows No. 3-74 on Sec. 3-2n-16w in the Horse Meadows area last was reported digging at 3576 ft.

It is worthy of note that Union established new all-time highs in the first nine months of 1953 for crude oil production, crude oil run to stills and sales volume. Net crude oil production averaged 102,500 barrels daily, an increase of 14 per cent over the average of 90,200 daily in the first nine months of 1952. Refinery throughput of crude oil has averaged 142,100 barrels daily so far this year, against 137,100 barrels a day for the corresponding 1952 period. Sales of crude oil and refined products amounted to 47,458,000 barrels during the nine months of the current year, an increase in sales volume over the 1952 period of more than 2,500,000 barrels.

The Superior Oil Co.'s Britton No. 1 in the Long Beach field. Left to right: A. A. Wycoff, head well puller; E. E. Brewer, derrickman; Charles Ritchie, floorman; T. R. Pearce, floorman.

Northridge Wildcat

San Fernando Valley is getting a real combing over for new oil, with the most recent wildcat to enter the drilling campaign there sponsored by Richfield in the Northridge area. Preparing to drill is the company's Pertusati No. 1 on Sec. 2-2n-16w. In the Granada Hills, Porter Sesnon et al is making hole at 5640 ft. with Quinby No. 65-10 on Sec. 10-2n-16w. Near San Fernando, Standard is drilling Mission No. 5-1 at 8100 ft., and Mission No. 6-2 on Sec. 2-2n-16w at 6140 ft.

In the Railroad Canyon area, Richard S. Rheem, Operator, is down near 4600 ft., with MJM & M Blodgett No. 1 on Sec. 14-3n-16w and fishing for cones.

In the Newport Beach area, Monterey's Newport Beach No. 1 wildcat on Sec. 29-6s-10w has reached a depth of 7125 ft. and at last reports had completed a fishing job.

In the East Huntington Beach area, Pacific Supply Cooperative is about to spud its Lamb No. 2-6 test on Sec. 6-6s-10w, with Petrie Drilling Company as contractor.

Seaboard Oil Company's Thorpe No. 1 test on Sec. 24-6s-11w at Huntington Beach has completed a fishing job and is drilling at 5000 ft.

Tide Water Associated's Bryant

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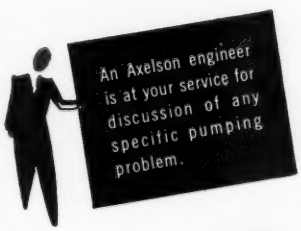

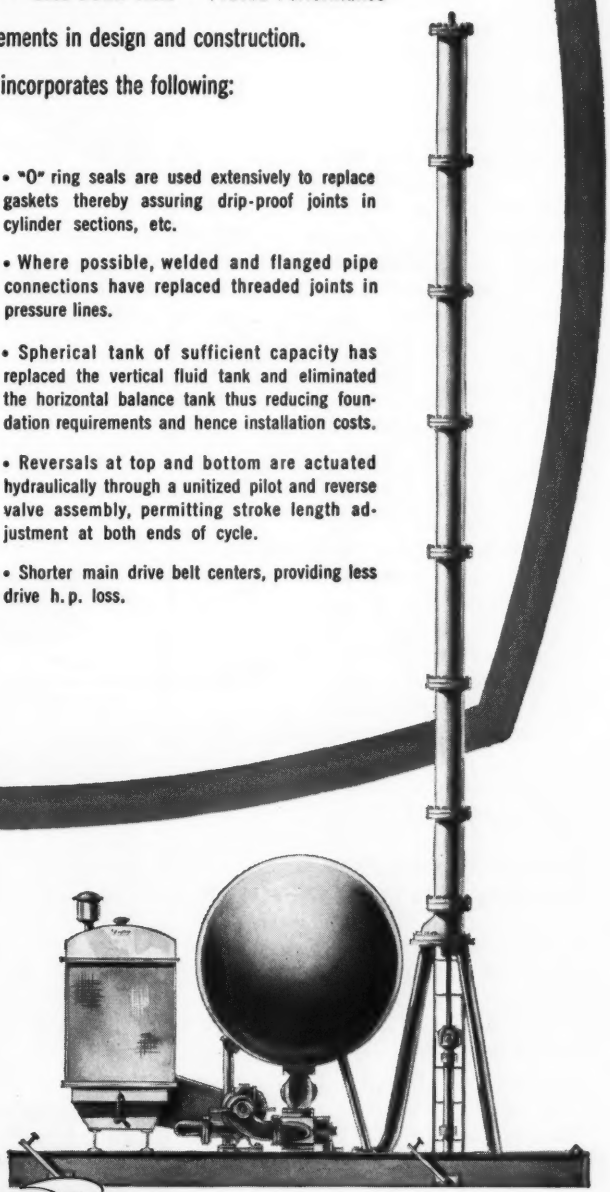

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Ranch No. 1 wildcat venture in the Puente Hills last was reported coring and drilling ahead below 4900 ft.

Atwood Well In

Superior Oil Company's Guarantee No. 6 wildcat on Sec. 33-3s-9w at Atwood-Richfield has been climaxed with a good yield. Drilled to a bottom of 4950 ft., the well is producing 450 barrels of 19.5 gravity oil a day. On the same section, Drilling & Exploration, Inc., has completed at 5070 ft. its Drilexco-State-Stern No. 5 for a satisfactory yield on the pump.

Terry Drilling Company is understood planning to drill two and possibly four wells in the Rosecrans field. Locations may not be any great distance from Union Oil Company production and objectives of the wells the known field zones.

Chino Tests Drill

In the Chino area of San Bernardino County, Donald B. Lamont's No. 1 wildcat test on Sec. 6-2s-7w continues to drill ahead at 2204 ft. Terminal Drilling Company is doing the work. On Sec. 29-2s-7w, Lee Drilling Company, Inc., is digging at 1545 ft. with its Eureka-Rubens No. 1-29.

With Pike Drilling Company contractor, Basin Oil Company is deepening at 5000 ft. the old Potrero No. 7 on Sec. 34-2s-14w.

In the Whittier field, Standard Oil has staked location for its Murphy-Whittier No. 68 on Sec. 26-2s-11w. Axis Petroleum Company has listed another drilling job in the Torrance field. It will take down No. J-4 on Sec. 25-4s-14w.

Bender Oil Operations' Mayo No. 1 wildcat test on Sec. 30-2s-10w in the Sansinena area is drilling steadily ahead below 2500 ft.

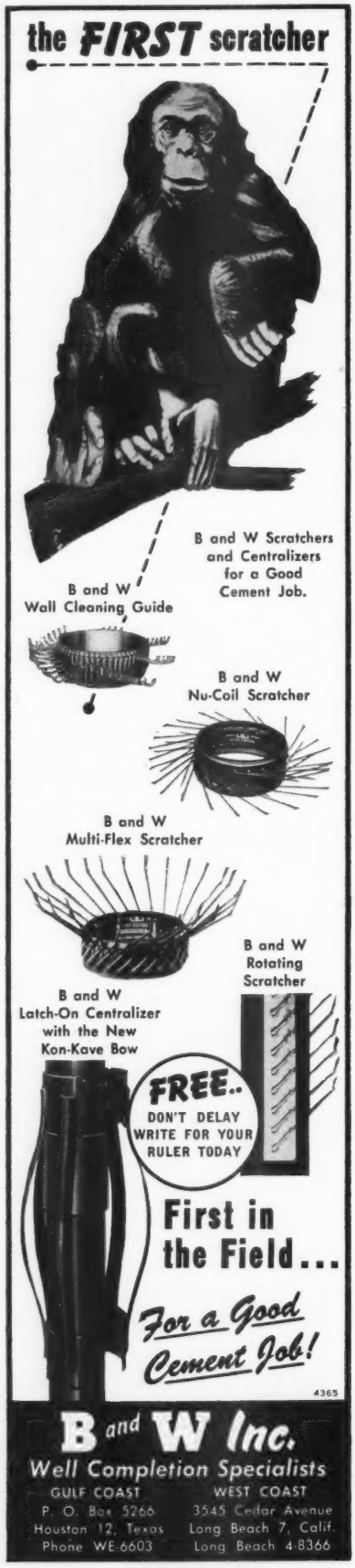
Reserve Opens New Pyramid Hills Pool

San Joaquin Valley oil interest is mainly centered on McLure Valley near Pyramid Hills where Reserve Oil and Gas Company uncorked new oil in quantity with its Orchard No. 48-20 wildcat well on Sec. 20-24s-18e, Kings County. Drilled to a total depth of 5237 ft. and then plugged back to 4429 ft., an official announcement let it be known that first tests of the well indicated production rate as high as 1000 barrels of 42 gravity oil a day through a variable choke. With a one-quarter-inch orifice in use, the indicated yield was 500 barrels daily. There was not the least evidence of water. Interval open to production appears to be in formation of Eocene age. Perforations range from a depth of 4390 to 4408 ft. Jasper W. Tully, Reserve president, said: "The full significance of the test cannot be evaluated accurately until other wells have been drilled in the area." He made known that Reserve has enlarged its holdings in the area and now has a leasehold block of 1060 acres of which 480 acres are 100 per cent held, with a 50 per cent interest in 580 acres. Casing is set at 4565 ft. in the new well. Burt Ellison and Glen, Burris and Milo Mitchel are understood to have interest in the discovery lease. Norris Oil Company and Franco Western Oil Company hold sizable acreage east and southeast of the Orchard project. Standard Oil of California also holds ground in substance in the area. Krug Drilling & Exploration Company of Bakersfield put the discovery well down. Reserve geologist is Jack Lavery.

About a mile west of production in the Kern Bluff field, Loren L. Hillman is drilling above objective depth of approximately 1500 ft. with Hillman-Roos No. 1 on Sec. 11-29s-28e. The principal zone producing in the Kern Bluff field is the Transition. Archie Myers is drilling the well with a contract rig. Fred Sperber is in charge of engineering. Location is on property in which the Roos family of San Francisco hold interest.

Coalinga Discovery

Lloyd J. Harnish's recent Coalinga discovery is a matter of comment by Ralph Arnold, eminent consulting geologist and petroleum engineer. The new well, No. 73 on Sec. 32-20s-16e, not only adds a new producing area to the fabulous Coalinga district but proves the extension of the Kettleman Hills Anticline into Pleasant Valley, according to Arnold. The well and area surrounding it, including 400 acres, the geologist explained, was originally located and leased by William Fiedroff, U. S. Geophysical Corporation, and himself. This action was predicated on the theory that the Kettleman Hills Anticline extended to the northwest under the area and the Harnish well has proved the cor-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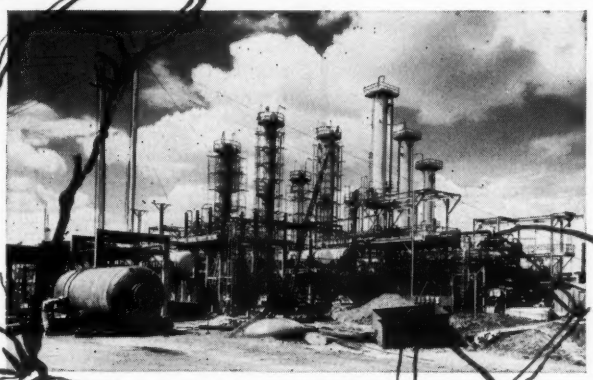

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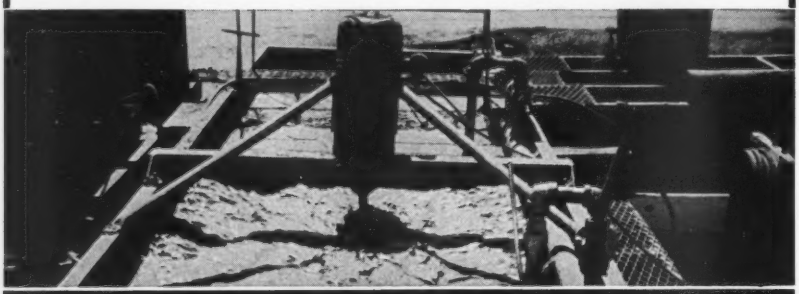

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rectness of the belief, Arnold pointed out. In 1907 Arnold and Anderson mapped the Coalinga district for the United States Geological Survey and the Coalinga-Kettleman Hills Anticline was shown as an uninterrupted sinuous fold. The geologist concluded that it is now evident that two Anticlines are distinct and lie "en eschelon with other, separated by a Syncline." The Guijarral Hills field evidently is on the southeastern end of the Coalinga Anticline and the new Harnish pool on the northwestern end of the Kettleman Hills fold. The new area has been named the Coalinga Harnish field, where Harnish has drilled the first 1000 ft. of hole with his follow-up well, No. 64-32F on Sec. 32-20s-16e, south and west of the discovery. Northwest of the find, Russell Giffen's No. 62-32F on the section is digging below 800 ft.

Another San Joaquin Valley discovery appears to have been chalked up by A. M. Dunn with his DLK No. 1-A, some 2500 ft. northeast of Edison Groves production. The well, on Sec. 28-29s-29e, is putting out about 25 barrels of clean 16 gravity oil from a plugged bottom of 1320 ft. Total bottom is 1356 ft., with top Chanac Transition oil sand at 1175 ft.

Greenacres Test

On lush agricultural land in the Greenacres area between fields at Rosedale and Fruitvale, C. W. Teater, Operator, is drilling below 1600 ft. with Teater-Billington No. 1 wildcat on Sec. 19-29s-27e. The drill site is slightly less than one mile south of a test put down last year by Richfield Oil Corporation to 7451 ft. Drilling chores are being handled by Gene Reid Drilling Company. George Roth is geologist and Tom Fitzgerald, engineer.

Three miles west of production in the Devils Den field, C. H. Bent has set in motion his D.B. No. 1 wildcat test on Sec. 7-25s-18e in Kern County's Barton Hills.

E. L. Corwin's Cohn Estate No. 46 well, wildcatting on Sec. 31-29s-21e or one mile east of the Temblor field, is drilling ahead below 1500 ft. Indications are the test will be carried to 3500 or 4000 ft.

In an effort to widen the Strand field producing area about one-quarter mile southeasterly, Bolsa Chica Oil Corporation is drilling on down at 2100 ft. with its No. 82-18 test on Sec. 18-30s-26e. Miller & York is taking the well down. Bankline Oil Company holds an interest in the project.

Richfield is all set to drill its Ramsey No. 1, a wildcat well on Sec. 22-10n-23w in the Upper Santiago sector. On the Gonyer Anticline, six miles southwest of Taft, the company has pulled out of its Gonyer-USL No. 78-21 on Sec. 31-32s-23e at an unproductive 11,438 ft. The area has been the scene of shallower and albeit unsuccessful ventures drilled respectively by Belridge Oil Company and Shell Oil Company.

Santa Fe Drilling Company, contractor, has the rotary spinning for Union Oil's Evans No. 56-36 wildcat on Sec. 36-12n-19w on Tejon Flats. On Sec. 14-11n-19w, Julio V. Dougherty & Associates' No. 65-14 test is working.

New Pool Opened

A new but small pool evidently has been opened by Enterprise Oil Company with its M & B No. 4 wildcat in the Bacon Hills area. The well, on Sec. 21-28s-20e, was finaled at a total depth of 1600 ft. for an initial yield of 20 barrels of 13 gravity oil a day, cutting 10 per cent.

In the Round Mountain area, A. M. Van Flick's USL Van-Ray No. 1 wildcat on Sec. 22-28s-28e has been put on the pump at 2702 ft., with representative gauge yet to come. The Vedder was topped at 2688 ft., with the 7-inch casing set at 2690 ft. and 5½-inch cemented at 2702 ft.

Luck failed to accompany T. & T. Oil Company's Neumarkle No. 55 test on Sec. 28-30s-30e in the Bena sector and the well faded into history at 1001 ft. Shell Oil also has recorded a new Kern County abandonment at Beer Nose. Its No. 58-5 test on Sec. 5-26s-19e persevered to 4299 ft. and then went the way of all dusters after coring gray sand. Shell is about to spud its Investment No. 386-16 on Sec. 16-19s-16e, three-quarters of a mile west of Coalinga production. It is designed to go deep.

Krug Drilling has commenced operations with Pacific Oil & Gas De-

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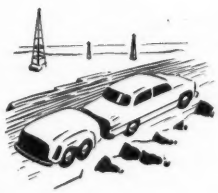

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velopment Corporation's Quinn No. 2 test on Sec. 14-25s-27e at Jasmine.

With Camay Drilling Company in charge, the C. Ray Robinson, Operator, Ripley No. 41 on Sec. 25-11n-23w was last reported making hole below 4600 ft.

On the Belgian Anticline, Honolulu Oil stopped the drill at 3172 ft. when gray sand was cored with its Honolulu-Watson-CCMO-Fee No. 3 test on Sec. 16-30s-21e.

Near Pleito Creek, Humble Oil's KCL No. 16 continues to plumb the depths on Sec. 35-11n-21w. The drill at last reports was approaching 14,600 ft.

Ohio Oil Company, whose deepest well in the world at Paloma ran into mechanical trouble at 21,482 ft., is set on wildcatting on land southwest of Earlimart in Tulare County. There the company is ready to drill its J. O. Phillips No. 1 on Sec. 12-24s-24e or not more than seven miles northwest of the Trico gas field. Ohio probably will not be satisfied with its forthcoming test drill until at least 8500 ft. have been logged.

Near Porterville, A. J. McGreevy's venture on Sec. 22-22s-27e is digging below 900 ft. Engineering is in the hands of A. F. Peterson.

On an expansive spread of ground in Merced County, Richfield's Henderson No. 1 wildcat on Sec. 34-6s-13e near the town of Merced is working in the shallower formations. In the Livingston area of the county, C. W. Farmer is preparing to drill his Kanoupis No. 1 test on Sec. 25-6s-11e, north and west a few miles from Merced.

The lone and current well drilling in Stanislaus County is growing deeper. Undertaken by Standard of California on Sec. 34-3s-8e in the Modesto area and known as Young Comm. No. 1, depth last reported was around 10,700 ft.

Hollister Try Works

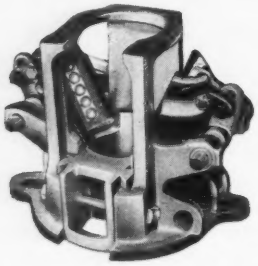
In the Flint Hills near Hollister, Tide Water Associated Oil Company's Breen No. 1 explorer, projected Sec. 19-12s-5e, San Benito County, is still probing for new oil at a depth of 4610 ft.

Some 8000 ft. will be drilled by The Texas Company's Nutting No. 1 prospect job on Sec. 32-12s-5e beginning work in the San Justo area of the county. Loffland Bros. will do the drilling. In Griswold Canyon, Strata Oil Company's Strata No. 1, which is wildcatting on Sec. 19-16s-11e, is down 900 ft., plus or minus.

Between the Lodi and Galt gas fields in San Joaquin County, D. D. Dunlap is preparing to drill a wildcat tagged Comm. One No. 18-5 on Sec. 5-4n-7e, with drilling contract assigned to Brown Drilling Company.

The no dope hole put down in San Luis Obispo County's Estrella sector by Havenstrite Oil Company has been written off at 6236 ft. Labeled Havenstrite-Cleary No. 1, the project was drilled on Sec. 8-25s-14e.

In the vicinity of the Chowchilla gas field in Madera County, Tide Water Associated continues to perforate and test its Redman-Cook No. 58-4 on Sec. 4-11s-14e. Total depth is 6500 ft., with the 5½-casing set at 3700 ft. Harry H. Magee of Oakland is set to drill his Stone No. 1-2 test on the Moffatt Ranch, Sec. 2-21s-14e.



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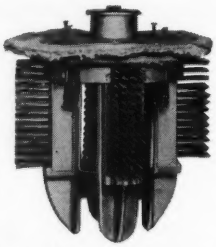

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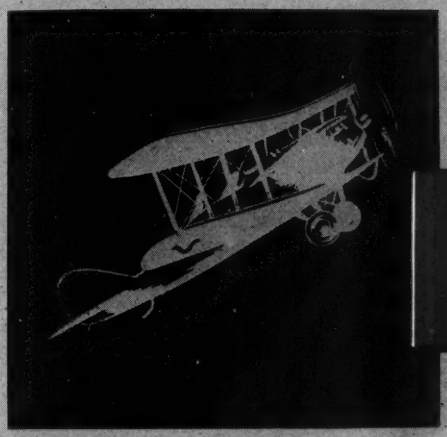

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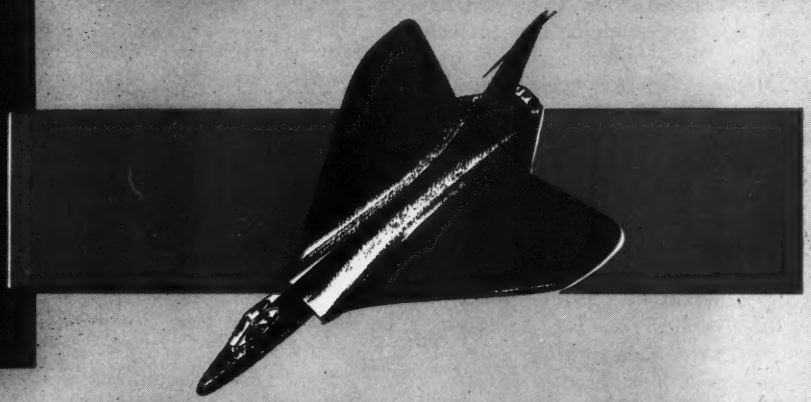

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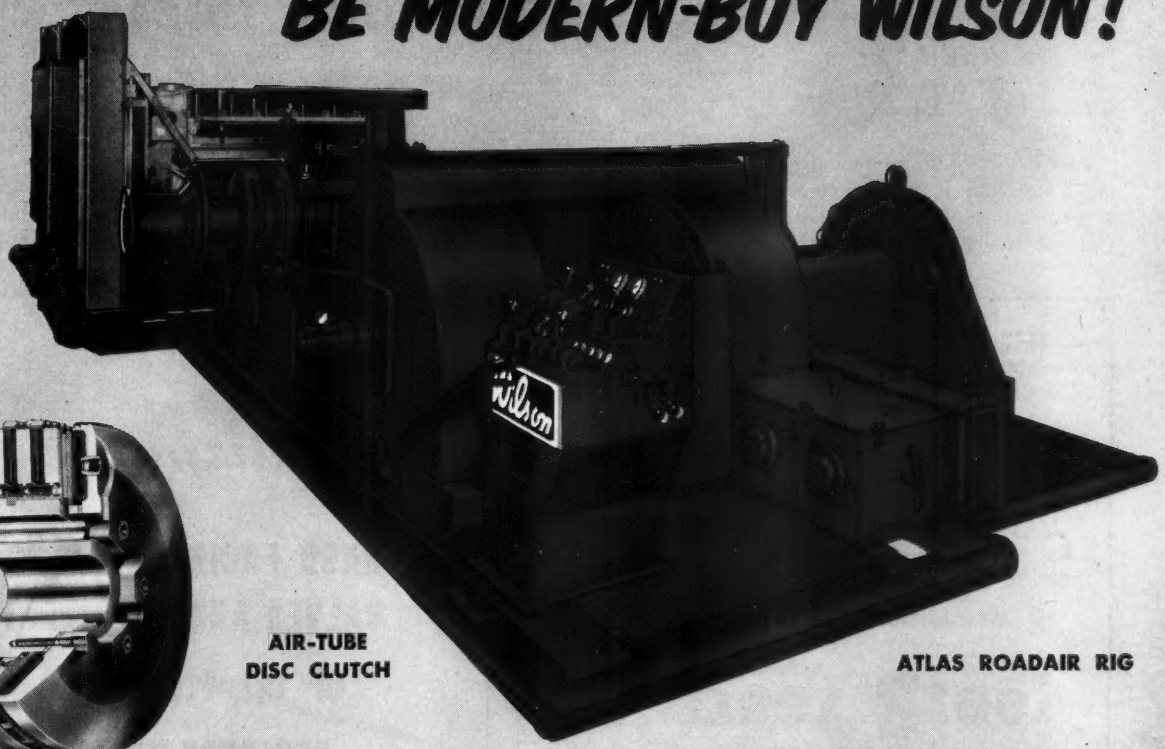

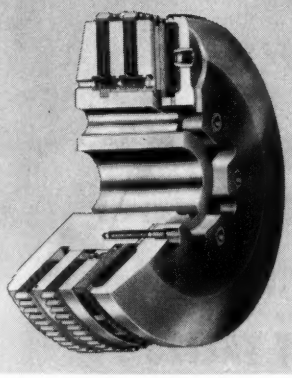

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Yolo County Test All Set To Drill

Arcady Oil Company is ready to drill a wildcat well in the Liberty Cut area of Yolo County designed to take out of hiding new production about three miles southeast of the Maine Prairie gas field. Contract for the job was awarded to Brown Drilling Company.

In the Winchester Lake area of the county, Richard S. Rheem, Operator, Kirtlan Comm. No. 1 wildcat on Sec. 23-7n-4e has reached a depth approximately 7000 ft.

Standard of California's Rist No. 62-9 wildcat on Sec. 29-19s-10e in Peachtree Valley, Monterey County, is making hole ahead at 1675 ft. The drill site is 17 miles north of the San Ardo field.

Three miles northwest of Greenfield, Humble Oil & Refining Corporation is digging on down at 4015 ft. with its Capital No. C-1 test on Sec. 27-18s-6e.

At Elk Grove in Sacramento County, Union Oil is in the preparative stage with its Union-Dow Attorney General No. 1 test on Sec. 13-7n-5e. Location is one and one-half miles northwest of a wildcat drilled to 4810 ft. by Intex Oil Company in 1948. It was a duster.

In the River Island sector at Rio Vista, M. E. and Frank Silva Company has completed Silva's Well No. 1 on Sec. 24-4n-3e at a plugged depth of 3880 ft. for 4,000,000 cubic ft. of gas daily through a 24/64-inch choke. The company owns in fee 160 acres on which the new producer was drilled.

Drilling is proceeding above objective depth in P. M. Oil & Gas Company's P. M. No. 1 prospect job at Point Reyes, Sec. 36-3n-9w, Marin County.

Some 1320 ft. south and west from the northeast corner of Sec. 21-17n-23w at Gridley in Butte County, Sunray Oil Corporation is about to start digging its Justesen No. 1 wildcat well. It is located no more than a couple of miles southeast of Union Oil's' Brazos Scammon No. 14-18, which found nothing of interest to 4013 ft. and was abandoned in October 1952. Sunray is continuing development of the Beehive Bend field it brought to light some months ago. The company's current job there is Whyler Unit No. 1 on Sec. 18-19n-1w.

Guadalupe Well Tests

Thee miles south of the the Guadalupe field, General Petroleum's Mahoney No. 1 on Sec. 9-10n-35w is running additional tests. On pumping trial the well showed heavy oil. Total depth is 4501 ft.

At Tar Springs, eight miles west of the Arroyo Grande field, Nelson B. Hunt, Operator, is digging deeper near 6000 ft. with Tar Springs No. 1 wildcat on Sec. 25-32s-14e. Santa Maria Drilling Company is doing the work.

Through the medium of its Palmer Stendel No. 1-C on Sec. 24-9n-33w, Slick-Moorman Production Company is credited with a heavy oil discovery at East Cat Canyon, Santa Barbara County. Bottomed at 3235 ft. and with casing cemented at 2331 ft., the well pumped initially at the rate of 30 barrels of clean 10 gravity oil a day. The 5½-inch pipe, including perforations from 2331 to 2934 ft., was landed at 2934 ft. Palmer Stendel No. 44-A on the section was redrilled

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Continuous Weld—Plain End	2⅜" to 4½" O.D.	Up to 40'	Standard	Fontana, Calif.
Electric Resistance and Fusion Weld—Plain End	14" to 18" O.D.	Up to 40'	.250" to .500"	Napa, Calif.—Basalt-Kaiser
Electric Resistance Weld—Plain End	5⅝" to 12¾" O.D.	Up to 55'	.188" to .375"	Fontana, Calif.
Electric Fusion Weld—Expanded—Plain End	20" to 30" O.D.	Up to 40'	.250" to .500"	Napa, Calif.—Basalt-Kaiser

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to 2800 ft., after going the first time to 2980 ft. and has been recompleted for a yield yet to be accurately evaluated.

At Carpinteria, Tyler & Hamilton's No. 1 wildcat project was last reported idle around 1000 ft. The derrick is on Sec. 34-4n-25w.

Camarillo Hills and its new production possibilities still holds the interest of Union Oil, a fact indicated by the company's preparations to drill Janss No. 2 on Sec. 22-2n-21w. Contract to drill the project has been let to Santa Fe Drilling Company. Union-Continental Janss No. 1 on the section was an obvious duster to 10,170 ft.

Oxnard Adds Test

Standard Oil's next wildcat test in the Oxnard area will be Lucas No. 1 near the intersection of Rice road and 5th street on Sec. 12-1n-22w. The company's Sespe Ranch No. 1 prospect well on Sec. 27-4n-20w at this writing is coring at 13,800 ft. Standard has its State No. D-2 and its McGrath 1311 on Sec. 35-2n-23w working at Montalvo.

West of Casmalia Hills, Golden Bear Oil Company's Docini No. 2 wildcat is on the pump at 2153 ft. for 25 barrels a day gross crude oil of 9 or 10 gravity.

In the Los Alamos area, R. C. Turnbull's Barham-Schmitz No. 4 on Sec. 12-7n-32w is redrilling at 5440 ft. The well was carried originally to an unproductive 6800 ft. by Seaboard Oil Company. The present operator redrilled from 4933 ft.

Equipment repairs temporarily stopped drilling at 3056 ft. in R. B. Jackson's R & G No. 1 on Simi wildcat ground in Sec. 17-2n-8w. At Piru, Richard S. Rheem of San Francisco is keeping the drilling bit busy at 2180 ft. in his Larinan No. 1 test, Sec. 24-4n-18w.

On Sec. 7-4n-22w at Ojai, Gordon W. Phillips' Bailey No. 1 explorer is reported idle for a time at 430 ft. At Upper Ojai, Richfield's Scott No. 1 on Sec. 1-4n-22w is completing at a plugged depth of 4950 ft. Total bottom is 5791 ft.

Back in the Simi area, Macson Oil Company of Beverly Hills is gun perforating and testing by stages with its Strathearn No. 1 wildcat on Sec. 6-2n-18w. Total depth is 2828 ft., with 7-inch casing set at 2730 ft. The Sespe-Eocene contact was placed at 216 ft. A fault from Eocene to Sespe was reported at 2380 ft.

In Ventura County's Basolo area, Harry C. Long, Operator, is setting in motion Shiells No. 1, an extension test on Sec. 32-4n-19w. The operator has finaled Burson No. 1 on Sec. 6-3n-19w at a plugged depth of 3462 ft. for a flow of clean 28 gravity oil at the rate of 175 barrels a day through a 12/64-inch bean.

Ventura Completion

General Petroleum Corporation has completed a new well in the Ventura Avenue field. Barnard No. 34 on Sec. 21-3n-23w at present is producing 1054 barrels of oil and 1,345,000 cubic ft. of gas a day from a total depth of 12,775 ft. Cut evidently is close to 40 per cent. In the Padre Canyon field, General's Padre No. 51 on Sec. 15-3n-24w is putting out 140 barrels of 26 gravity oil from 4345 ft. The company's White No. 144 on Sec. 21-9n-33w at Cat Canyon at last reports was yielding but little oil, but much water. The well is bottomed at 3935 ft.

San Marino Oil Company's Capital Crude No. 16, Sec. 7-3n-19w, Bardsdale field, is on the pump at 7472 ft. for 76 barrels of net 35.8 gravity oil a day.

At petrolia in Humboldt County, West Coast Oil Corporation's new producer, known as West Coast No. 1, is pumping a dozen barrels of clean 47.5 gravity oil a day from 1785 ft. The drill site is on Sec. 21-15-2w. At Alton, B-N Development Corporation is continuing test at its Rocha No. 1 wild cat on Sec. 16-2n-1w. The project is bottomed at 8246 ft. Richfield's H. B. & M. No. 1 Petrolia wildcat on Sec. 13-1s-3w is down 2030 ft. and testing.

Two tests, flying the banner of Shell Oil, are still locations at North Kirby Hills in Solano County. They are Unit A No. 1 and Unit C No. 1 on Sec. 7-4n-1e.

The Pescadero Creek area in Santa Clara County is currently being wildcatted by Union Oil's Waugamann No. 1 on Sec. 27-11s-3e. However, normal drilling operations have been interrupted at 3723 ft. by a fishing job brought about by lost bit.

Aggravated by lost circulation, Los Nietos Company, Operator, has pulled out of its Stewart No. 10 well on Sec. 24-3n-21w in the South Mountain field. Drilled to a total depth of 5738 ft., circulation was lost after several days of work, with the 29th plug set at 2380 ft. Electric log run and sidewall sampling was the prelude to final abandonment.

Superior Oil Company is drilling another well in the Ramona field. Black No. 16 on Sec. 13-4n-18w is the designation.

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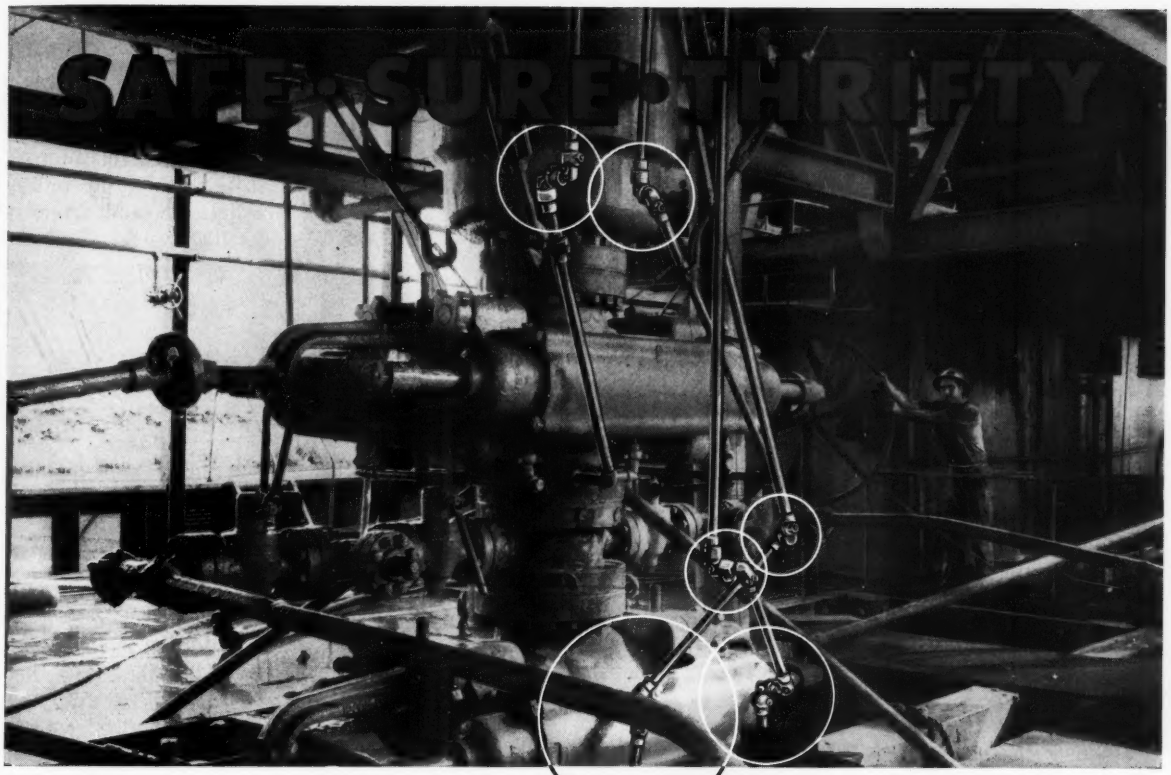

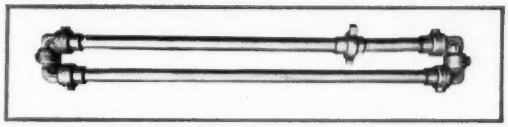

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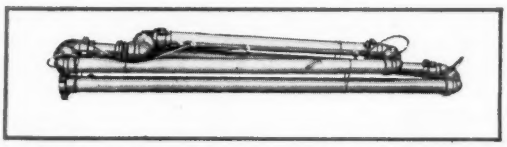

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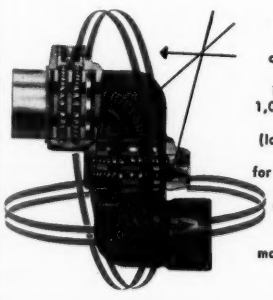

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During regular drilling or fishing operations, the Bowen Bumper Sub is an integral part of the string. It easily withstands all the torsional strains of drilling and is packed off with a special abrasive and pressure resistant packing that permits high circulation pressures to be used without leakage. It is amply strong to stand the abuse of drilling and fishing under all conditions, and requires only occasional servicing.

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George W. Ring, veteran oil man, has been elected a director of the Southern California Committee for the Olympic Games.

Lloyd Harnish of Fresno, who the other month chalked up an exciting oil discovery in the Coalinga area, is understood giving serious consideration to starting a new daily paper in Fresno, along with a group of associates. He indicated the new publication will be a morning paper.

President Tad Travers of Brookline Oil Company at Los Angeles is currently making headquarters in Avenal in order to keep a watchful eye on Brookline's field activities in neighboring areas.

George R. (Frank) Urich of Whittier, who recently sold 25 of his service stations to Standard, announces that in the future he will give more time to the tank lines and automobile agencies which he owns and operates. He also made known that he will make a bid for entry into oil production. He holds extensive oil leases in California and a number of other states.

Richfield Oil Expands Bakersfield Plant

W. J. Travers, Jr., Vice-President in Charge of Production for The Richfield Oil Corporation, has announced that extensive additions are to be made to the multi-million-dollar Northern Headquarters of the firm near Bakersfield, California.

Birdseye view of Northern Division Headquarters of Richfield Oil Corporation, near Bakersfield, California. Architect's drawing shows additions to the Administration Building about to be made.

The additions to the existing Administration Building will provide a total of nearly 40,000 sq. feet of office space dedicated to Production and Exploration Department administration. David M. Biggar of Bakersfield is the General Contractor for the new work. George Vernon Russell, AIA, of Los Angeles is the architect of the project.

According to Russell, new features of the addition will include extensive medical facilities and an employees' canteen, lunch and meeting room, opening out to a pleasantly shaded patio. All office areas are air-conditioned, and extensive landscaping has been used. Richfield has been a leader in the breakaway from the makeshift corrugated iron shed facilities of early petroleum developments.

A unique type of concrete and steel panel construction which has established an enviable record of resistance to earthquake has been used throughout by Architect Russell.

Other facilities at the Northern Division Headquarters include a laboratory building; extensive machine shops; mobile equipment repair garage; recently completed heavy-duty field engine repair shops; warehousing; and vast pipe and drill-tool storage yards covering nearly 80 acres. These have been constructed over a period of several years from plans prepared by Russell.

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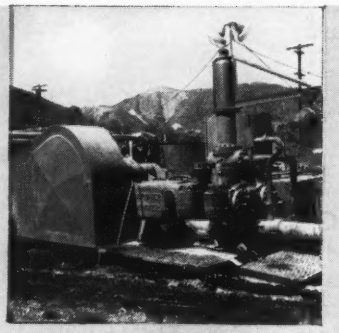

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Rocky Mountain NEWS

Colorado—Idaho—Montana—New Mexico—Utah—Wyoming—Western Canada

RMOGA Elects

Newly elected officers of the Rocky Mountain Oil and Gas Association will serve for a year and a half—until June 1, 1954. Elected to head the association for the coming year at the annual convention in Denver was W. W. Flenniken, Denver independent, who succeeds H. B. Gernert of the Trigood Oil Co. of Casper, Wyo.

Other officers named were C. L. Larson, Jr. of Casper, vice president for Wyoming; J. L. Dougan, Salt Lake City, vice president for Utah; R. F. Shannon Jr., Denver, vice president for Colorado and Nebraska; W. M. Saxon, Billings, vice president for Montana and South Dakota, and H. A. True Jr. of Casper, treasurer. Mr. True succeeds Walter G. Davis of Casper.

The association adopted amendments to the by-laws providing for a change in the time of electing officers. Hereafter they will be elected in June, but this does not change the time of the annual meeting, the selection of the date being left to the executive committee.

The size of the executive committee was increased from 20 to 25, and more clearly defined lines of authority were established.

Retiring President Gernert called for compulsory proration in Wyoming and Colorado, pointing to a situation in Weston County, Wyoming where oil "is running out of the operators' ears," and where, Gernert said, some operators are selling crude below the posted prices.

Gernert's recommendation came as a surprise to many of the oil men assembled for the convention. Incoming President Flenniken indicated a need to meet changing situations with changing methods but he did not come out definitely for compulsory proration.

The convention heard an address by W. J. Murray Jr., a member of the Texas Railroad Commission, which has control of oil and gas proration in the Lone Star State. Murray declared that the record in Texas definitely shows that voluntary agreements will not work, and he advised the Rocky Mountain states to benefit by the experience of the Lone Star State.

Gernert also told the convention that there is a very real danger that the depletion tax allowance law will be repealed or that the allowance will be reduced.

How's the climate in Washington for the oil and gas industry? Senator Frank A. Barrett (R-Wyo.) told the Rocky Mountain Oil and Gas Association in Denver that it is better than it has been for a long time. The senator spoke before a joint meeting of the public lands and legal committees. William (Scotty) Jack of Casper, executive vice president of RMOGA, said in his annual report that it will be "anything but pleasant" in the coming year. Jack is a Democrat.

Montana

Empire Oil encountered a flow of 3984 barrels of oil per day from the B-1 and B-2 zones of the Madison at the No. 3 Cornejo, c ne sw 8-29n-51e, in the East Poplar area of Roosevelt County. The recovery was after acidizing. The well is located in c ne sw 8-29n-51e. Drill stem tests were taken at 5806-14 feet, 5824-29 and 5832-38 feet.

In Chouteau County, Milton Spencer was preparing to core ahead after finding shows in the Sawtooth at the No. 1 Carpenter, ne ne sw 22-27n-7e. The shows were in cores but the limestone was hard and tight. Before coring ahead the operator will have to squeeze off water.

Lyon Oil Co. is operating the No. 1 Knight as a tight hole in Wibeaux County. Operator was last reported drilling below 4840 feet. The well, in c sw nw 29-14n-60e, is between the Cedar Creek anticline of Montana and the Fryburg area of North Dakota and is being watched closely as the first wildcat in the area.

Stanolind Oil and Gas Co. is drilling below 9500 feet at the No. 1 NPRR, c sw se 21-4n-60e, in the Webster area of Fallon County, after finding slightly oil cut salt water in the Red River.

Murphy Oil Corp. will drill the No. 1 Firemoon, c se se 12-30n-41e, in the East Porcupine Area of Valley County. It will be a test of the Cambrian and is scheduled for 7685.

North Dakota

Amerada Petroleum will drill a southeast extension of the No. 1 Yttredahl in the Keene Area of McKenzie County. The extension will be the No. 1 Govt.-Fruh, c sw sw 34-154n-95w. The No. 1 Yttredahl was brought in as a Madison producer, with initial production rated at 142 barrels per day.

In the Teepee Butte area of Hetinger County, southwester part of the state, Socony-Vacuum Oil Co. is planning to drill the No. 1 Jacobs nw nw 24-134n-96w. It will be a wildcat and will be on a block of 25,000 acres.

Amerada failed to find commercial shows in the No. 1 McKeen, c se se 25-153n-95w, in the Charlson area of McKenzie County and was preparing to abandon. Operator found slight gas shows in the Madison, but no oil.

South Dakota

J. P. Evans was drilling below 6300 feet at the No. 1 Capp, c nw nw 9-13n-16e, in Perkins County. No shows have been reported. The well is in the northwestern part of the state.

PAGES FROM THE LEBUS WIRE LINE SPOOLING HANDBOOK

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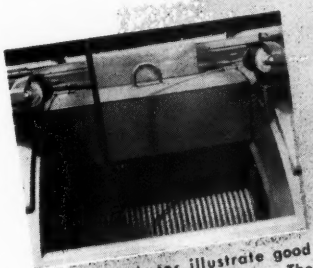
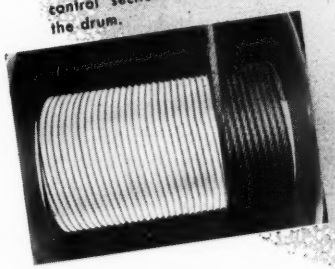
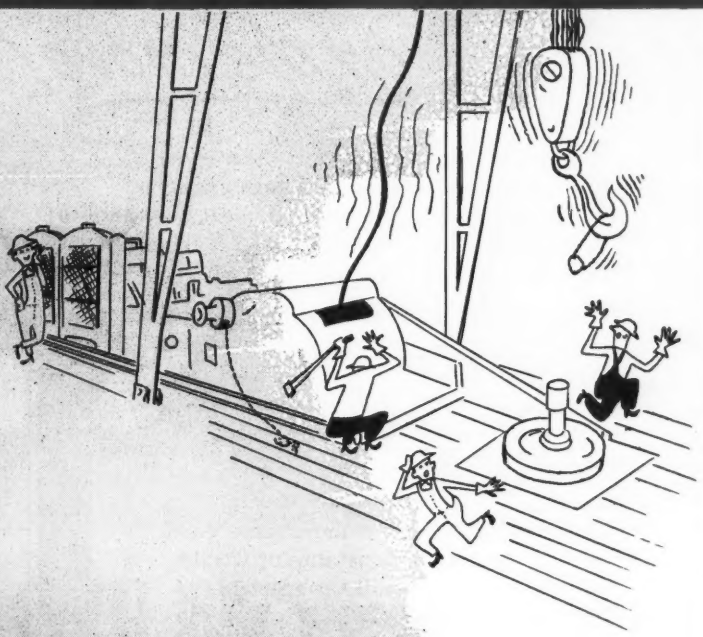


These two photos illustrate good spooling with LeBus Grooving. The top photo shows the second and third layer of line spooling evenly on the drum. The lower photo shows that less line is used when picking up the load and shows the Angle control section (20% to 25%) of the drum.





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Today, over 1,600 drilling rig drums are grooved with LeBus Grooving and Controlled Pyramid Spooling. Contractors who have installed LeBus Grooving will tell you it is the finest investment they have ever made, because LeBus Grooving SAVES TIME, MONEY, and WIRE LINE.

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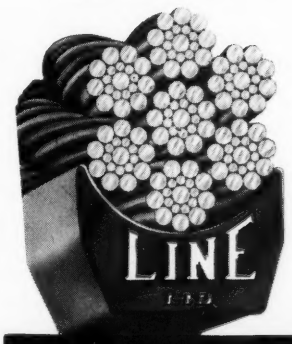

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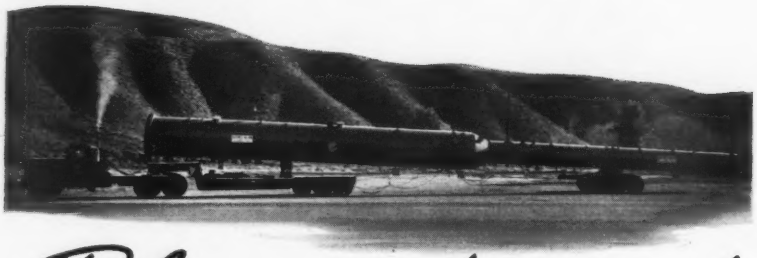


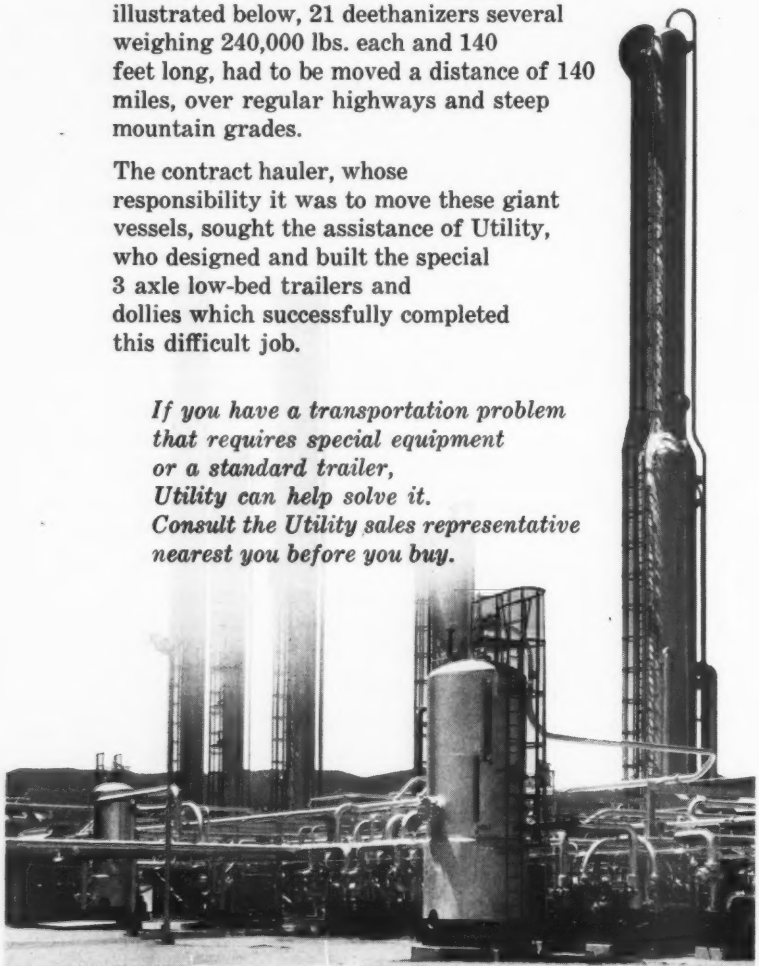
Refinery on the move!

Refinery construction always imposes a transportation problem. The huge cracking towers and the other large equipment necessary to its function, usually have to be moved over difficult and inferior roads.

During the building of the large gas plant illustrated below, 21 deethanizers several weighing 240,000 lbs. each and 140 feet long, had to be moved a distance of 140 miles, over regular highways and steep mountain grades.

The contract hauler, whose responsibility it was to move these giant vessels, sought the assistance of Utility, who designed and built the special 3 axle low-bed trailers and dollies which successfully completed this difficult job.

If you have a transportation problem that requires special equipment or a standard trailer, Utility can help solve it. Consult the Utility sales representative nearest you before you buy.



UTILITY

UTILITY TRAILER MANUFACTURING CO.

Los Angeles 54, Calif.

In the northeastern area. Oil Ventures will drill the No. 1 Naessig, ne ne se 32-121n-55e, Day County. It will go to the granite.

Nebraska

Plains Exploration and Dunn & Boreing recovered heavily oil cut mud and some water in a test of the D sand at the No. 1 Hill, ne sw sw 4-15n-49w, in Cheyenne County. The D sand was topped at 4508 feet. Operator was drilling ahead.

At the No. 1 Runge, in Cheyenne County, Chicago Corp. and Republic Natural Gas, recovered 65 barrels of oil and 27 barrels of water per day, pump gauge. Production was from the D sand at the interval 4726-29 feet. The well is located in sw se ne 17-14n-50w and is northwest of the Doran pool.

Mid-Continent Petroleum recovered 75 barrels of oil per day, pump gauge, from the No. 1 Chaney, ne ne ne 27-13n-57w, in Kimball County. The well has been completed.

New Mexico

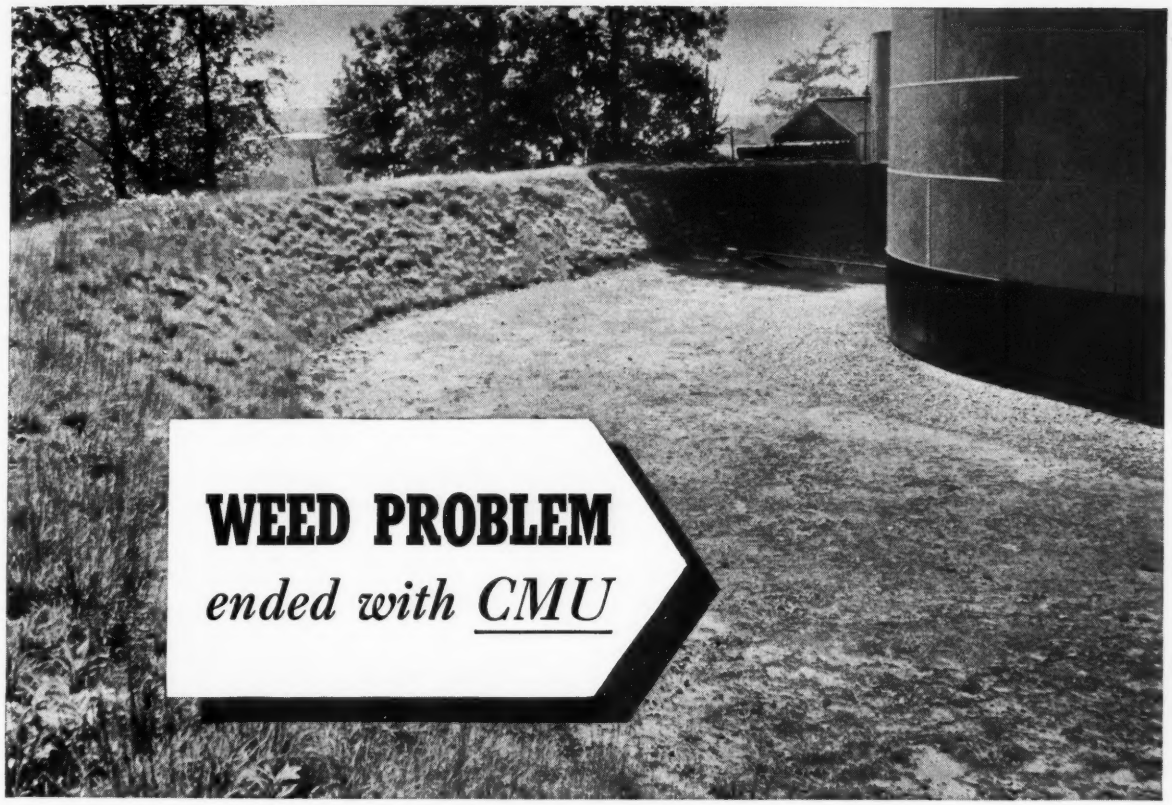
Southern Union Gas was preparing for further tests of the No. 1-A Jicarilla, sw ne sw 23-26n-4w, in Rio Arriba County, after swabbing two barrels of oil per hour from the Dakota. Top of the Dakota was logged at 7815 feet and the production was through perforations at 7985-8005. The Morrison was topped at 8035 feet.

Colorado

After recovering gas in commercial quantity from the Dakota, Forest Oil found the upper Entrada unproductive at the No. 1 Govt., ne nw ne 2-7s-104w, in the Carbonera Dome area of Garfield County. Operator was coring ahead.

Spears and Colorado-Wyoming Oil encountered a flow of 10 barrels of oil per hour through 12/64 inch choke at the No. 1 Zimbleman, c se ne 22-2n-63w, in the Roggen area of Weld County. The D sand was topped at 7036 feet and the production was from the interval 7038-63 feet.

Another producer from the Permian in the Black Hollow field of Weld County has been completed. The California Company brought in the No. 1 UPRR, ne sw sw 31-8n-66w for 320 barrels of oil per day, pump



Powerful Du Pont CMU kills weeds and grass and also prevents regrowth

Save labor and cut fire hazards caused by unwanted vegetation with Du Pont CMU. As little as 1 or 1½ pounds of CMU per 1000 square feet . . . 40 to 60 pounds per acre . . . can get rid of weeds and grass for an entire growing season or longer. Use CMU around tank farms, oil and gas wells, refineries, pumping stations, above-ground pipelines and barrel yards.

- Kills most kinds of weeds and grass and prevents regrowth. It works through the roots . . . just spray it on the ground.
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- Saves work, cuts maintenance costs. One spray with CMU takes the place of repeated hand cutting, mowing, application of other chemicals or other less effective means.
- Non-flammable, non-volatile, non-corrosive. Comes as a wettable powder to mix with water.

TO GET THIS BOOKLET SHOWING RESULTS WITH CMU, *fill in coupon at right.*

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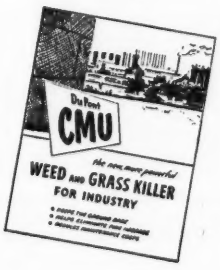
. . . THROUGH CHEMISTRY



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gauge. The well was drilled to a total depth of 8958 and was still in the Permian (Lyons) sand. The same operator drilled the Permian discovery in this field. A third well is being drilled.

Southwestern Exploration was drilling below 3500 feet at the No. 1 State, sw sw ne 16-30s-42w, with no shows reported thus far. The test is in Baca County.

Wyoming

A total of 173 wells was drilled or started in Wyoming during the month of October, surpassing all previous records. Weston County continues to be the most active, with 52 rotary rigs recently reported in operation there.

In the southwest Black Thunder area of Weston County, Northern Drilling chalked up another discovery from the Newcastle sand, the No. 1 Govt. nw nw nw, 12-41n-67w. The well produced 20 barrels of oil per hour through open tubing. All production in the Clareton-Black Thunder area has been from the Newcastle. The discovery extends the producing area three and one half miles to the southwest.

Texas Company was drilling around 1620 feet at the No. 1 Govt.-Coffman, nw ne ne 15-38n-86w, in the Cottonwood area of Natrona County. It will be a test of the Madison, expected at 1900 feet.

The Pegasus division of Socony-Vacuum has scheduled a test of the Madison in Hot Springs County. The well will be drilled on an 8970-acre Skelton Dome Block which has just been unitized and will be the No. F-44-25-G, c se se 25-45n-100w.

Superior Oil Co. is reported to have recovered 2330 feet of oil, from the Phosphoria at the No. 36-14 Govt. sw ne sw 14-37n-85w, in the Okie Draw area of Natrona County. The report has not been confirmed. The well is a mile and three quarters southeast of production in the Notches field, where production is from the Tensleep.

Utah

D. W. Hancock is reported to have recovered 100,000 cubic feet of gas per day at the No. 1 Govt., c ne nw 21-17s-25e, in Grand County, but the formation has not been revealed. At last reports operator was running casing at 3535 feet. The well was originally scheduled as a 3200-foot test of the Entrada.

Western Canada

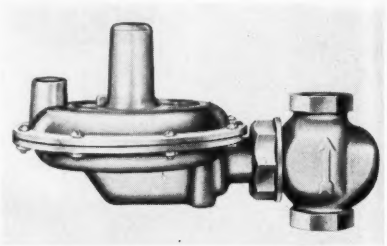
A discovery that may indicate a new field some 70 miles southwest of Edmonton has been brought in by Socony-Vacuum and Seaboard. It is the North Pembina 11-13.

Gas reached the surface in five minutes and oil in 40 minutes on a 50-minute drill stem test of the Cardium at the interval 4946-57 feet.

The discovery is six miles northeast of the same operators' Pembina No. 1.

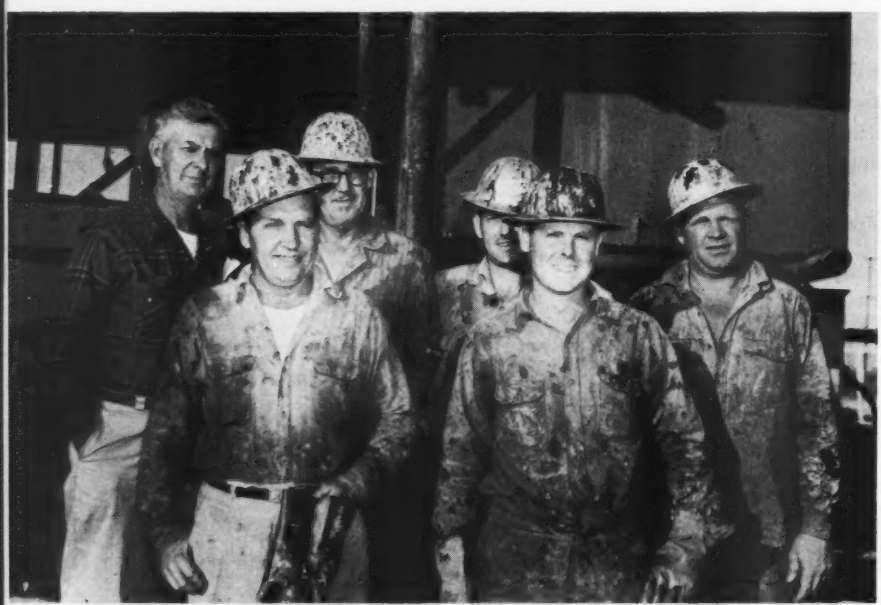
New Reliance Regulators

American Meter Company has announced the production of its new Series 1400 Reliance Regulators for house or service low pressure installations. These regulators are particularly suited to applications where distribution systems are converted from low to high pressures.



The new regulators feature ease of installation and mounting in any position through incorporation of a union type removable pipe section. Regulators can thus be quickly installed in close quarters where space restrictions are encountered in existing meter piping, without difficulties and without the need for accurate alignment with the diaphragm section. The company states that the Series 1400 units are particularly designed to stand-up under rugged operating conditions with minimum maintenance, yet provide precise regulation over a wide range of flows and supply pressures. Maximum inlet pressure is 75 pounds per square inch.

For safety, the Company advises the regulators are strongly constructed to withstand normal installation stresses without damage. Also, a large area vent is provided for emergency gas escape in case of excess pressure. Large, soft, standard regulator springs provide accurate setting of outlet pressure and prevent adjustment for excessively high pressures. An optional built-in mechanical relief valve is set to relieve at approximately 14 inches of water. The Series 1400 Regulators are furnished with ¾, 1 and 1¼ inch standard pipe thread connections.

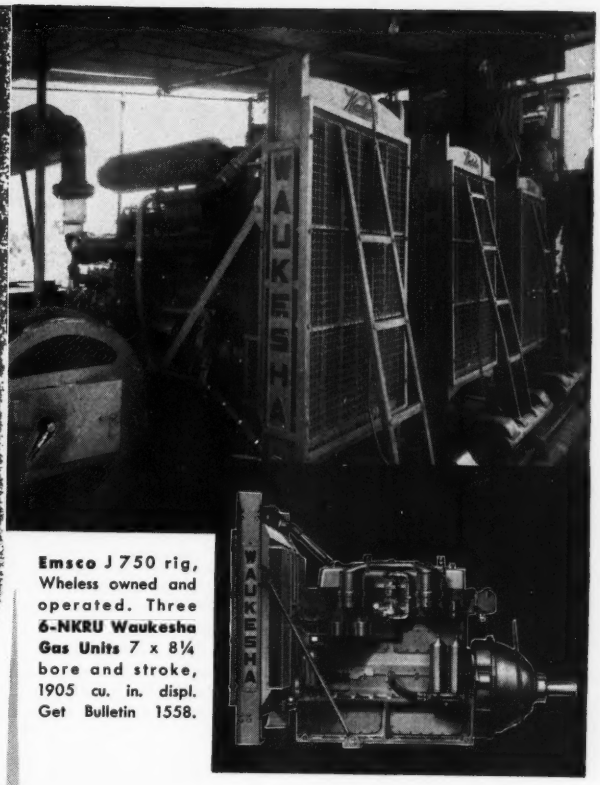


L. B. O. D.'s W-268 on Terminal Island now being put down by Camay Drilling Company. Left to right: (Front row) Al Kokkeler, racker; Paul Lusk, lead tong; (back row) "Red" Lutes, pusher; Ray Hite, driller; Monroe Connels, cathead; and T. O. Magness, derrickman.

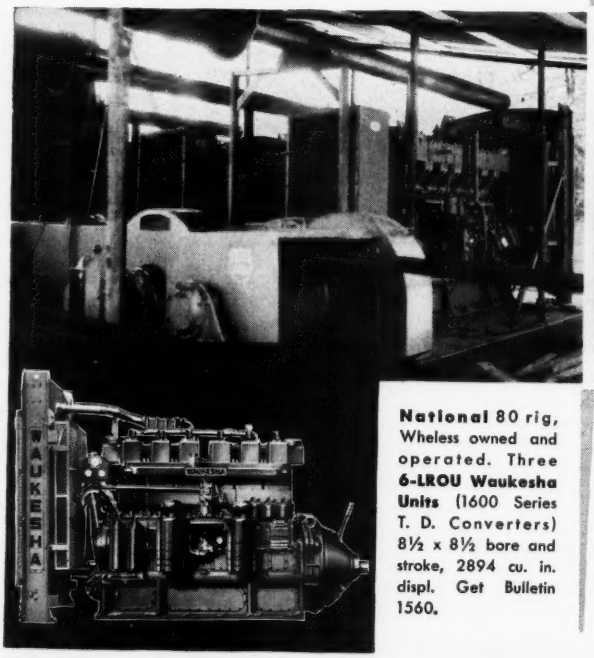
"Less down time with WAUKESHA than with any other engine I have ever used"

Nick Wheless, Jr., Vice President
WHELESS DRILLING COMPANY*
Shreveport, Louisiana

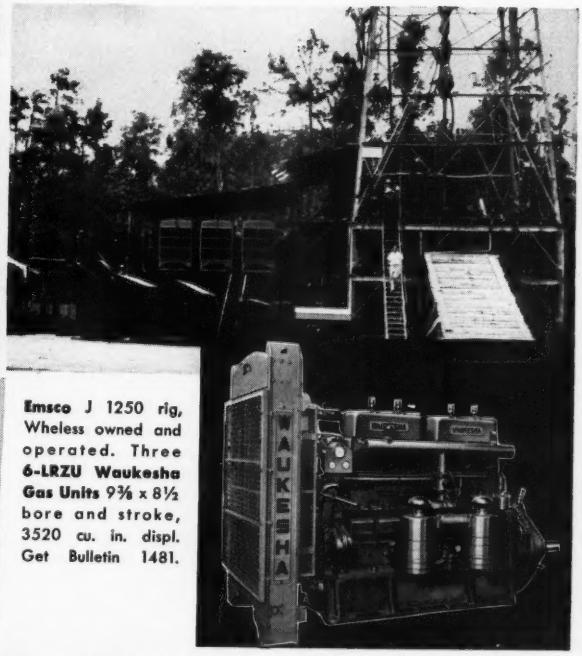
***Operators of 7 Waukesha-powered drilling rigs**



Emsco J 750 rig, Wheless owned and operated. Three **6-NKRU Waukesha Gas Units** 7 x 8¼ bore and stroke, 1905 cu. in. displ. Get Bulletin 1558.



National 80 rig, Wheless owned and operated. Three **6-LROU Waukesha Units** (1600 Series T. D. Converters) 8½ x 8½ bore and stroke, 2894 cu. in. displ. Get Bulletin 1560.



Emsco J 1250 rig, Wheless owned and operated. Three **6-LRZU Waukesha Gas Units** 9⅜ x 8½ bore and stroke, 3520 cu. in. displ. Get Bulletin 1481.

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WAUKESHA

Diesel **OIL FIELD POWER** *Gas*

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Personalities IN THE NEWS

Lane-Wells Awards Fellowship To Young Canadian Engineer

John E. Wilcox

John E. Wilcox, of Dawson Creek, British Columbia, is taking advanced studies in petroleum engineering at the University of California in Berkeley, California, on a fellowship awarded by the Lane-Wells Company.

The Lane-Wells fellowships were established in 1952, as part of the company's Scholastic Program, for the purpose of aiding graduate engineers to carry on the research and study necessary for a Masters or Doctors degree.

Mr. Wilcox, who plans to specialize in secondary recovery and oil property evaluation, attended the Peace River South Grammar and High Schools in Dawson Creek and took his collegiate work at the University of British Columbia, in Vancouver, and at the University of Alberta, in Edmonton. He is a member of the American Institute of Mining and Metallurgical Engineers and belongs to the Association of Professional Engineers of Alberta.

C. E. Lapp, owner of the Square Oil Company is a real old-timer. His company, made up of buildings and yards, is on Adobe street near College avenue and close to the hub of the famous old Los Angeles oil field. Many wells are still producing round-and-about there and Lapp, who has been active in the area for 55 years, knows every page of history of the field. Square takes most of the oil now produced in the area to help meet demand for road oil, fuel oil and other products. The company's extensive holdings are skirted by the Arroyo Seco Freeway.

Born in Scotland, Miss Elizabeth Bell crossed the ocean to eventually land in California where she took and kept her first job—for 29 years—with the Los Angeles office of the Reed Roller Bit Company. Longest in point of service of all women employees in the Company's history, Miss Bell is well known in West Coast oil tool circles. She retired from active service on November 1.

C. G. (Tommy) Williams, Univeral Consolidated Oil Company vice president, was host to newsmen and other guests at a special showing of his firm's well in the Beverly field. Spectators agreed that the rig and all appurtenances were models of perfection from every standpoint.

Last rites for Attorney John A. McNair, 67, who died in Los Angeles, were held at Forest Lawn Memorial Park. Mr. McNair was general attorney for The Texas Company since 1944. He resided in Glendale.

Drexler Dana, widely known Kern County consulting geologist, has changed his office address to a new building at 18th and Oak streets, Bakersfield. The building is owned by Dana and W. A. Croft.

Genial Fred J. Townsend, Hagestad Drilling Company manager, was host at the recent dinner held by the drilling organization in Bakersfield. The highlight of the get-together was the presentation of safety awards to crew members of rig No. 1, Elk Hills; rig No. 2, Fellows; and rig No. 3, Edison. Cash and safety shoes were among the rewards presented to members of the drilling crews.

Glenn McCarthy, Houston oil man, who a couple of years ago put down several wildcat wells in California, has organized a new company called Glenn McCarthy, Inc. A prospectus of the new company cites that some 970,000 acres of oil and gas leases are held in Bolivia.

Pictured above is Edward E. Lucas, president of Lucas-Draves Mfg. Co., a Montebello company active in fabricating for various major oil companies. Lucas-Draves' operations include fabricating machining, repairing and rebuilding of most items for production and refinery departments of the oil industry and the handling of the Wiggins reamer. Although his firm is young (incorporated three years ago), Mr. Lucas has behind him 18 years' experience in lines of work performed by his plant.

...and give thanks you live in America!

THIS THANKSGIVING as you bow your head to express your gratitude for your private blessings, remember to give thanks for one you share with over 150 million other people:

The blessing of living in America.

Nowhere else in the world are your personal rights so well guarded, and your work so well rewarded.

The average American wage, for instance, is $3100 ... the Russian but $720.

The American gets an average of 323 pounds of meat per year ... the Russian gets only 33 pounds.

The American has an average of 38 pounds of sugar to sweeten his life yearly ... the Russian just 18 pounds.

The American spreads a minimum of 18 pounds of butter and margarine on his bread in a year. The Russian gets but 4.2 pounds.

Authority for these Russian production figures? Georgi Malenkov, Premier of Russia. These are his own statistics in his official speech to his Deputies.

He gives *no* figures for the production of cars, television sets, refrigerators. Eight years after the end of World War II the Russian is apparently getting almost none of these things.

Such unwitting testimony for the free American way of life – from the one who would destroy it – should give us pause this November 26th.

Pause to express our thanks for the gift of American citizenship, and the inalienable rights this gift bestows.

Pause to determine to protect this way of life for ourselves and our children's children...against *any* odds!

UNION OIL COMPANY
OF CALIFORNIA
Incorporated in California, October 17, 1890

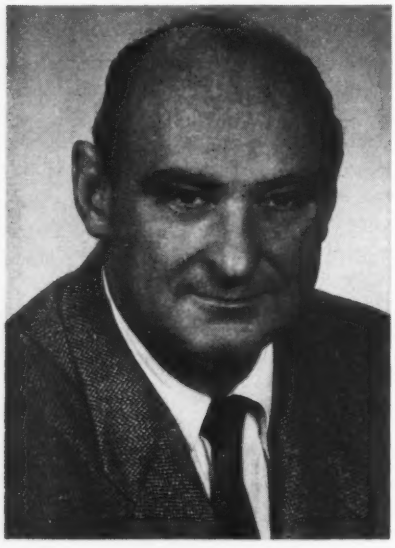
MANUFACTURERS OF ROYAL TRITON, THE AMAZING PURPLE MOTOR OIL

Shell Announces Changes In Public Relations Dept.

Carl E. Totten, public relations representative for the Shell Oil Company in Los Angeles, was transferred to an executive position in the public relations office of the company in New York effective November 1, according to an announcement made by Mr. P. E. Lakin, vice president.

Carl Totten

Paul W. Harvey, public relations representative in San Francisco, was transferred by Shell to Los Angeles and replaced Mr. Totten. Mr. Harvey has been public relations representative for northern Calif., Wash., and Oregon for the Shell Company for the past four years, having prior to that time been located in Los Angeles with the company's marketing organization. Mr. Harvey was replaced in San Francisco by W. L. Gordon, the company's public relations representative in St. Louis.



Paul W. Harvey

Tide Water Promotes Hadden

Robert C. Hadden has been promoted to the newly-created position of Assistant Manager of the Crude Oil and Products Department of Tide Water Associated Oil Company's Western Division, it was announced recently by Lloyd F. Bayer, Vice President of the Company.

Hadden, who has been operating assistant of the same department, will operate from the Company's San Francisco headquarters. He will assist in directing the purchase and exchange of crude oil and products and coordination of the supply of petroleum raw materials into the Company's refineries at Avon and Watson, Calif.

A graduate of Occidental College, Los Angeles, with a B.A. Degree in Economics in 1948, Hadden served in World War II in the European Theatre as an air force pilot. He is married, has one child, and lives at 3469 Jackson St., San Francisco.

BJ Service, Inc. Announces Personnel Changes

John B. Merritt, executive vice-president of BJ Service, Inc. has announced the following changes in personnel assignments:

John L. Buster from the General Office in Long Beach, California, to Casper, Wyoming, as Rocky Mountain division manager. Buster replaces E. M. Syverson, who has been transferred to the Long Beach, California, office on special assignment.

Paul Whitaker has been transferred from sales engineer in Worland, Wyoming district to Casper, Wyoming, as Rocky Mountain division sales supervisor, replacing O. O. Luttrell who has been reassigned to the Bakersfield, California district.

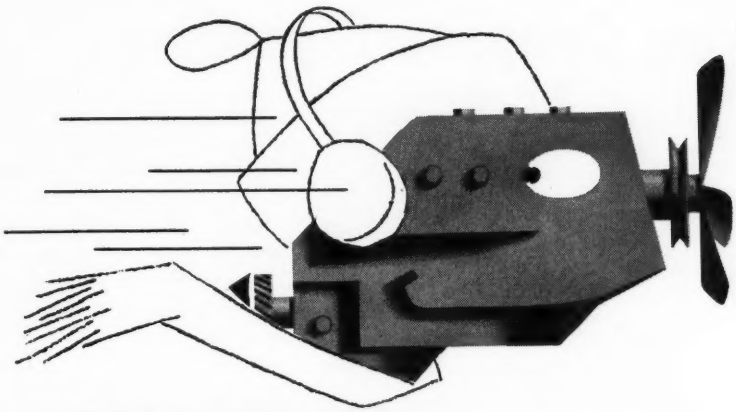
Ralph Gilbert has been transferred from sales engineer in the Bakersfield, California district to Worland, Wyoming, replacing Paul Whitaker.

WINNERS—Basil Kantzer, Union Oil Co. of California chairman of the House Committee, presenting gold mounted walnut boxes of dominoes as first prize awards to the winners of the Fourth Domino Tournament of Petroleum Club of Los Angeles. The Winners were—(center) James G. Leovy, (right) Paul O. Broxon, both of the Legal Department of Western Gulf Oil Co. of Los Angeles.

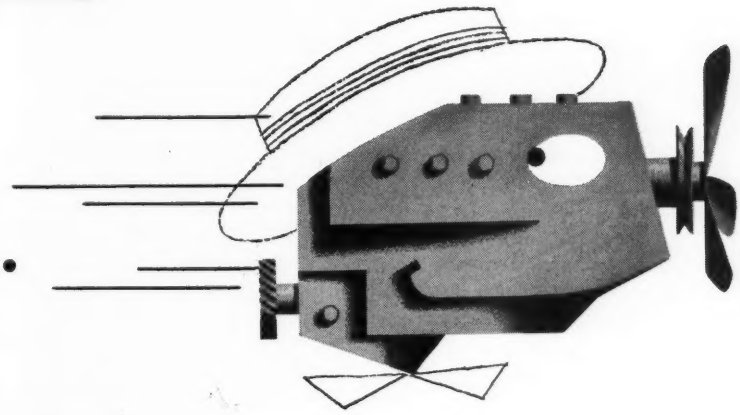
RUNNERS-UP—the Runners-Up prizes for the Fourth Domino Tournament, are being presented to Paul Andrews, Signal Oil and Gas Co. (left) and Glen W. Ledingham, Western Gulf Oil Co., (right) by Basil Kantzer, Union Oil Co. of California.

THIRD PLACE WINNERS of the Fourth Domino Tournament were A. J. "Jim" West and Milton W. Lewis, consultants, (left to right) receiving their awards of a set of dominoes in a walnut box from Basil Kantzer, Union Oil Co. of California.

Sy Wicker of Bakersfield, owner of extensive oil interests, has returned to the Kern County city from a vacation trip to Spokane and other Pacific Northwest points.



IN COLD MONTHS



OR WARM...

ENGINES AGREE ON TYDOL HD

Because it **CLEANS**...Tydol HD keeps engines extra clean. Gets rid of sludge and other deposits that cause sluggish performance and power loss.

as it **PROTECTS**...Tydol HD affords extra engine life by neutralizing corrosive acids. Unchecked, these engine acids would cause pitting, destructive wear.

as it **LUBRICATES**...Tydol HD lubricates instantly in any weather...permits safe, easy cold starts. It's an extra safeguard against stop-and-go wear.

EXTRA PROTECTION
AT NO EXTRA COST →

TIDE WATER ASSOCIATED OIL COMPANY (Western Division)

Coastal Engineering Company Expanding

In addition to its present accounts, Coastal Engineering Company, an expanding sales and service company with headquarters in Bakersfield, is now factory agent for the McEvoy Company products. McEvoy Company of Houston, Texas, manufactures McEvoy Christmas tree valves, gas lifts and chokes which are widely used in domestic and foreign fields.

Along with handling the "world's tightest valves"—as McEvoy Company's products have been sloganized—Coastal Engineering Company also is factory agent for LeBus products and also handles Red Devil products in the Northern Division of the West Coast area. LeBus drum grooving and other products are manufactured by LeBus Rotary Tool Works, Inc., of Longview, Texas. Red Devil pump parts are manufactured by Oil Well Manufacturing Corporation, Los Angeles.

Coastal Engineering not only handles other accounts but its own as well, manufacturing the Coastal Sand Line Spooler, Coastal Derrickman's Safety Belt, Diamond Drill Pipe Wiper, Coastal Weight Buckets, and Coastal Truck Flaps. All products which the company manufactures or sells for others are world wide—used the world over wherever there are oil fields.

Coastal Engineering Company was formed in 1948 in Bakerfield by W. C. Jones and R. T. Hussey. Jones soon afterward bought out his partner and still heads the firm. In the beginning, the company confined its activities to the sales and service of its own products—first the Coastal Sand line Spooler, later the Coastal Derrickman's Safety Belt and the Diamond Drill Pipe Wiper. First major move of the company to represent other people's products was to handle the LeBus account.

Mrs. Dorothy Jones, Secretary of Coastal Engineering Company.

W. C. Jones, head of the company, has a background of oil field sales and service work for seventeen years. A native of Tyler, Texas, he grew up in the East Texas fields and has worked in every oil-producing section of the United States. Offices for Coastal Engineering are maintained in the Coastal Building at 2907 L Street, Bakersfield.

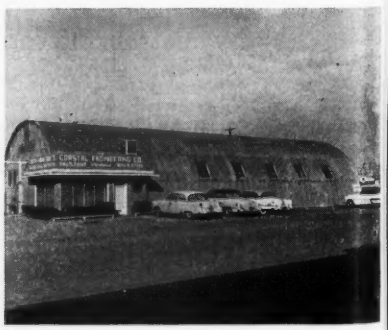
Mrs. Dorothy Jones, wife of the Company head, serves as secretary of Coastal Engineering. A legal secretary before her marriage, she has kept books for Coastal Engineering since it was begun some five years ago. In her spare time, she serves as recording secretary of the Bakersfield Desk and Derrick Club..

Company personnel includes J. T. "Jim" Duncan, sales and service representative who works out of the Bakersfield office and covers the entire state; George Jones of Long Beach, who also is a sales and service representative; Jim Pullen of Bakersfield, service man; and Bob Ryerson of Bakersfield, who serves as California agent for the Coastal Sand Line Spooler.

Expansion of business as noted in the addition of the McEvoy Company account to the company's accounts will necessitate the addition of another representative in Ventura, according to W. C. Jones. The Ventura representative will be a specialist in on the well and off the well installations.

Left to right: Jim Duncan, sales and service representative; and Jim Pullen, service man for Coastal Engineering Company.

W. C. Jones, Coastal Engineering Company, with McEvoy Company model valve.



Bakersfield headquarters for Coastal Engineering Company.

Greatest Gasoline Development in 31 Years!

Up to 15% more power
Up to 150% more spark plug life

TCP*, a Shell discovered additive, now blended into Shell Premium Gasoline, puts an end to greatest cause of power loss in automobile engines.

Strange as it may seem, the majority of cars on the road today are not putting out their full horsepower.

Perhaps you may have noticed that your power "falls off" especially when accelerating, climbing a hill, or driving on the open highway.

The reason is that, in the average engine, deposits are constantly accumulating on the spark plugs and in the combustion chambers. They actually "short-circuit" your spark plugs and cause pre-ignition of the fuel mixture, especially when you want extra power and "step on it" hard!

To overcome this condition, Shell Research discovered TCP—a remarkable fuel additive which has the property of counteracting the power-wasting effect of these deposits.

As a result, Shell Premium Gasoline with TCP additive gives you up to 15% more power, up to 150% more spark plug life, *plus an increase in gasoline mileage.*

Shell Premium with TCP is the most significant development in gasoline since the introduction of tetraethyl lead in 1922.

Shell Premium with TCP quick to act

So rapidly does Shell Premium with TCP additive counteract the deposits on spark plugs and in combustion chambers, that you'll feel your engine's had a tune-up before you've finished the second tankful. You enjoy that new car pep again.

NOW IN YOUR TOWN
but only at your Shell Dealer's

TCP is Shell's trademark for the remarkable additive originally developed by Shell Research for aviation fuels. Until now has been largely restricted to military aircraft.

Now at all Shell Dealer Stations.

*Patent applied for

SHELL PREMIUM GASOLINE

The Most Powerful Gasoline Your Car Can Use

SHELL

THIS LAUGH OFF!!

Dotty: "I hear you're going West this summer to start a chicken farm."

Dinah: "No . . . just going to Reno to change roosters."

Uncle Zeke claims the reason girls cross the street carefully and cross their legs carelessly is that they'd much rather be run down inside the house.

Coach: "What's his name?"

Manager: "Osscowinsinski."

Coach: "Put him on the first team. Boy, will I get even with the newspapers."

The cute little thing entered the doctor's office with a worried look.

"Doctor," she said, "I need an operation."

"Major?" he asked.

"No," she answered, "Corporal."

A local fellow was raking the yard a few days ago. Across the fence the neighbor lady was hoeing in her garden.

"Nice evening," said the man.

"Yes, indeed," replied the lady. "What are you doing?"

"I'm raking the yard," replied the man, "and I'm about the best little raker you ever saw."

"Well, I'm hoeing in my garden, but I'm not the best . . ." replied the lady, who quickly turned and went into the house.

Motorist: "I clearly had the right-of-way when this man ran into me, and you say I was to blame."

Cop: "You certainly were?"

Motorist: "How do you figure that?"

Cop: "Because his father is mayor, his brother is chief of police, and I'm engaged to his sister."

Jim: "When you stay after class with the professor what do you do, study history?"

Mary: "No . . . make it!"

Don: "There are two things bridge has taught women: concentration and self-control."

John: "Not to mention the art of opening cans and how to pick up a meal at the delicatessen!"

A nervous little man walked into a grocery store in a small town.

"I want to buy all your overripe vegetables and stale eggs," he said.

"Well," said the shopkeeper with a twinkle in his eye, "you must be going to see the new comedian at the theater tonight."

"Not so loud," said the little man, looking around apprehensively. "I am the new comedian."

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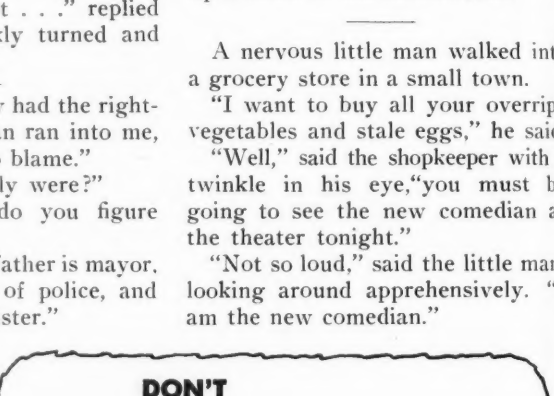

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